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THE NEW SYDENHAM SOCIETY.

INSTITUTED MDCCCLVIII.

VOLUME LIX.

A

BIENNIAL RETROSPECT

OF

MEDICINE, SURGERY

AND THEIR

ALLIED SCIENCES,

FOR

1871-72.

EDITED BY

MR. H. POWER, DR. SHEPHERD, MR. WAREN TAY
MR. R. B. CARTER, DR. PHILLIPS,
AND
DR. T. STEVENSON,

FOR

THE NEW SYDENHAM SOCIETY.

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REPORT

ON THE

PROGRESS OF PHYSIOLOGY AND THE ALLIED SCIENCES,

DURING THE YEARS 1871 AND 1872.

BY

HENRY POWER, F.R.C.S., M.B. Lond.,

EXAMINER IN PHYSIOLOGY AND COMPARATIVE ANATOMY IN THE UNIVERSITY LONDON; SENIOR OPHTHALMIC SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

The principal treatise on physiology that has been published duri the last two years in the English language is the fourth volume of D Flint's 'Physiology of Man,' which embraces the consideration of t nervous system, and is one of the best, as it is the most complete, e positions of the state of our knowledge of nerve physiology that v at present possess.

Dr. Bennett adds one more student's manual to those already existin which, besides the information usually given in such text-books, co tains three chapters or sections devoted to practical chemical physiolog to practical histological physiology, and to practical experimental ph siology. The first of these has been written by Dr. McKendrick, a will probably prove of much service to students.

Dr. Nichols has published a manual of physiology applied to soci and sanitary science, which, with some errors and eccentricities, contai much thoughtful writing.

Dr. Dalton has issued a fifth edition of his 'Human Physiology,' t sections in which on the liver and on reproduction are both origin and excellent.

Dr. Rutherford has done important service by publishing a series lectures in the 'Lancet' for 1871-72 on experimental physiology, which the principal facts, and the evidence supporting those facts, th have been made out during the last few years upon the functions a vital properties of muscle, nerve, and gland, are given with great clea ness and much originality.

The Sydenham Society has published a translation of the secon volume of Stricker's 'Manual of Histology,' and also the first volum of Rindfleisch's 'Pathological Histology.'

France has produced but little. The ninth volume of Miln

Edwards's large work on 'Comparative Physiology,' which is o with the tegumentary appendages of animals, has appeared; Bernard has published a series of lectures on "Experimental logy," delivered at the Collège de France, and an excellent co forty lectures on "Animal Heat," by the same author, is conta the 'Revue Scientifique.'

Germany, as usual, has been very active, her activity exhibitin in the production of a multitude of papers rather than of complete some of these, however, attaining almost the size of a treatise (the essay of Schmidt on "Fibrin," in Pflüger's 'Archiv'). Th published in innumerable journals, rendering it difficult to obtai still more difficult to find the time to run hastily through all, and impossible to analyse them in such a manner as to do justice valuable work and results they frequently contain. The mere of them would occupy the entire space allowed for this no physiological progress.

An interesting lecture on "Dust and Smoke" was delive Prof. Tyndall, at the Royal Institution, on June 9, 1871, con statements and detailing experiments, which have since been fre referred to, as showing the presence of much floating organic ma ordinary air, and as supporting the germ theory.

Bastian* contributes a very important work on the mode of o the simplest forms of animal life, such as Bacteria, Torulæ, and These he believes he has demonstrated can develop without ant spores in organic infusions, and even in solutions of ammoniac which have been exposed to temperatures supposed to be suffic destroy all life. Such development he terms archebiosis. H maintains that by a process of heterogenesis the higher forms of infusoria, and even a Rotifer, may develop from the proligerous of organic solutions.

Dr. Sanderson† corroborates Dr. Bastian's statements in particulars, and has satisfied himself that, following Dr. B directions, infusions can be prepared which are not deprived ebullition of from five to ten minutes of the faculty of undergoin chemical changes which are characterised by the presence of sw Bacteria, and that the development of these organisms can proce the greatest activity in hermetically sealed glass vessels, from almost the whole of the air has been expelled by boiling.

Crace Calvert‡ contends, in opposition to Dr. Bastian, tha living bodies appear in any solution they proceed from the ment of germs introduced from without or previously present killed by the temperature to which they have been exposed. that life is retained by some of the lower forms of animal life ev exposure to a temperature of 300° F., but not of 400°. It may noticed that Dr. Blake§ has found certain diatoms growing in ance in water at a temperature of 163° Fahr.

* 'The Beginnings of Life,' London, Macmillan, 2 vols., pp. 475 and 64
† 'Nature,' Dec. 14, 20, 27, 1872.
‡ 'Proceed. Roy. Soc.,' xix, 409, 1871.
§ 'Month. Mic. Journ.,' 1873, 71.

Metcalfe Johnson,* speaking of the transmutation of form in certain Protozoa, observes that if an examination be made of some of the green growths on moist surfaces we shall find one composed of a dust, to which the name of Chlorococcus has been applied; another, a green scum on the surface of a liquid, which has received the name of Euglena a third, forming patches of dark green slime, is called Oscillatoria; a fourth, Lingbya; a fifth, Vaucheria; and a sixth, Schizonema. More detailed examination of these separately named products, and a study of their life history, leads to the opinion that they are all stages of development of some one common source, which he believes to be the Monad. He has himself watched and here depicts the transformation of Paramæcium into Vorticella, and of this into *Callidina elegans*.

The truth of the doctrine of pangenesis has been put to a practical test by Mr. F. Galton,† by breeding from rabbits of a pure variety, into whose circulation blood taken from other varieties had previously been largely infused; the results were absolutely opposed to the idea of pangenesis, the animals continuing to maintain in their offspring the purity of the breed.

Dr. Bree has published 'An Exposition of Fallacies in the Hypothesis of Mr. Darwin.'

Mr. Huxley, 'A Manual of the Anatomy of Vertebrated Animals.'

Dr. Ord, 'Notes on Comparative Anatomy.'

ABSORPTION.

In regard to absorption, H. Auspitz ‡ has made many experiments on the absorption of solid substances from the serous cavities, using for this purpose starch-meal, the grains of which preliminary observations showed to be easily recognised under the microscope when injected into the blood. The grains were found to be taken up in their solid form. The presence of oil or fat greatly favoured the process of their absorption. The examination of the skin after the infrication of starch-meal salve showed the grains to have penetrated into the tissue of the corium, into the subcutaneous connective tissue, and into the muscles connected therewith, but not into the fundus of the sebaceous glands or of the hair-follicles. Neumann's § researches with mercurial ointment showed, on the contrary, that when this was well rubbed into the skin it penetrated into the hair-bulbs, sebaceous follicles, and, for a short distance, into the sweat-ducts. He believes it is absorbed from these parts after a variable length of time in the form of sublimate. Neumann satisfied himself that rabbits absorb corrosive sublimate through the skin after long immersion in a bath containing a small proportion of that salt.

Genersich,‖ in a paper on the absorption of lymph by tendons and fasciæ, shows that the action of the muscles plays an important part in

* 'Month. Mic. Journ.,' v, 222; vi, 184 and 217, 1871.
† 'Proceed. Roy. Soc.,' xix, 1871.
‡ 'Wiener Med. Jahrbücher,' N. F., 1871, iii.
§ 'Wiener Med. Wochens.,' 1871.
‖ 'Ludwig's Arbeiten,' 5 Jahrg, 1870.

causing the lymphatics of the tendons to absorb, by a kind of
power, the lymph within and surrounding the muscular mass
ascertained the amount of lymph discharged from the thoracic
a given time, both when the muscles were quiescent and when
to powerful and sustained action by induced currents of ele
and found that the proportion varied from 1 : 4·45 to 1 : 24·5 in
of the period when the muscles were called into play. Lesser *
borates Genersich's results, and recommends the insertion of
tube into the thoracic duct of fasting dogs for the procurement
quantities of lymph. He obtained in this way as much as 300
lymph in a few hours. Hammarsten † analysed the gases of the
thus obtained, and found as much as 40 per cent. of carbon
Nasse‡ investigated the circumstances that influence the flow
mation of the lymph. He finds that ligature of the carotid din
the rapidity of the current in the cervical lymphatics, and cause
crease in the amount of water and a diminution in the amount c
in the fluid traversing them. Ligature of the veins produced o
effects. Irritation of the sympathetic, or rather of the vago-
thetic, caused a diminution of the lymph current and augmenta
the coagulability of the lymph. Section of the sympathetic l
markably little effect.

Goltz § has demonstrated, in an interesting paper, that the
centres have a direct and considerable influence on the pro
absorption.

Popper || has investigated the mesenteric glands of dogs by m
the chloride-of-gold method of Cohnheim and Gerlach. He fi
capsule of the lymphatic glands contains fasciculi of non-med
nerve-fibres, from which nerves pass off, which penetrate into th
stance of the gland, where they form a fine plexus, some of the f
which are traceable into connection with the cell-elements. H
there were found stellate cells resembling ganglion-cells.

Dr. E. Klein and Dr. Burdon Sanderson,¶ in a paper on the
and pathological histology of serous membranes, describe the a
ment of the lymphatics in them. They show how the lym
communicate at various points, not only by true stomata, but
means of protoplasmic processes of the lymph-canal-cells which
the surface between the endothelial cells with the serous cavity.
last they call pseudo-stomata. In a later number** of the same
Dr. Lavdowsky lays claim to the merit of being the original dis
of the true stomata, and the same histological feature was obse
Dr. Winogradow†† in the amnion.

Rohrig‡‡ shows that various substances, as turpentine, solu

* 'Berichte der könig. Sächs. Gesellschaft der Wissensch.,' 1871.
† Idem, 1871.
‡ 'Henle und Meissner's Bericht für 1871,' 121.
§ 'Pflüger's Archiv,' v, 1.
|| 'Archives of Medicine,' v, 46.
¶ 'Centralblatt,' Nos. 2, 3, and 4, 1872.
** No. 17.
†† 'Rudnew's Archiv,' iii, 1871, 1.
‡‡ 'Archiv d. Heilkunde,' 1872, xiii, 341-388.

iodide of potassium, &c., can be absorbed through the unbroken skin, especially if applied under pressure.

Other papers are by Eichorst ("Ueber die Resorption der Albuminate im Dickdarm"), in 'Pflüger's Archiv,' 1871, 570-662. Heiberg ("Safi canal system der Schleimhaüte"), in 'Nordiskt Med. Archiv,' iii, 4, and Laqueur ("Ueber die Durchgangigkeit der Hornhaut für Flussigkeiten"), in 'Centralblatt,' No. 37, 1872.

BLOOD.

The most important treatise that has appeared upon the blood is that of Preyer * on the crystals of the blood, of which the reader will find an analysis in 'Humphry and Turner's Journal of Anatomy,' by Dr. Rutherford, and another in the 'Medico-Chirurgical Review' for 1872. Preyer finds hæmoglobin in all vertebrates, in one mollusc (Planorbis), two arthropods, and two worms. It is not present in echinoderms, cœlenterates, protozoa, or plants. It exists independently of the blood in muscle. The easiest, though not the best, mode of procuring hæmoglobin-crystals is to defibrinate dogs' blood and mix it with one and a half times its weight of cold water. After three hours add a quarter of its volume of rectified spirit. This fluid, if left for a night in a freezing mixture, will be found to contain crystals in the morning, which should be washed with a little pure water. Pure hæmoglobin is very insoluble. All the forms of its crystals belong either to the rhombic (man, guinea-pig, and most mammals) or to the hexagonal (squirrel and some rodents) system. All doubly refract light. Hæmoglobin gives one absorption band; when combined with oxygen it gives two. He gives its formula as $C_{600}H_{960}N_{154}Fe_1, S_3, O_{179}$. It can be broken up into albuminoid compounds, pigments, and acids.

M. Brondgeest † found a variable number of colourless crystals in the blood of frogs kept for some time at low temperatures. Their form was, for the most part, prismatic, with very long lateral surfaces and pyramidal extremities, not, therefore, agreeing with any known form of blood-crystals. They are insoluble in water and in ether, soluble in dilute acids and alkalies, and in a 5 per cent. solution of common salt. They are very stable. When dried they may be kept for years unchanged in appearance. They do not form as the blood thaws, but may be seen in the frozen blood. They cannot be obtained from coagulated blood. They are most abundant and best seen in animals that have been frozen into a solid block at a temperature of 4° Cent., and then submitted to a considerably lower temperature. Brondgeest believes them to be derived from albumen.

Struve, of Tiflis,‡ has demonstrated the presence of two colouring matters in blood. One of them is extremely soluble in water and alcohol, but with some difficulty in ether, and not in acids. The ashes contain silicic and phosphoric acids, oxide of iron, and a little alkali. It gives a blue colour with tincture of guaiacum and turpentine. It appears

* 'Die Blut-crystalle,' Jena, 1871, 263.
† 'Archiv f. Genees-en-Naturkunde,' 1870, 378.
‡ 'Virchow's Archiv,' lvi, 1872, 423.

to be identical with Preyer's alkaline oxy-hæmatin or V. Witt *hæmatin*. The second kind of colouring matter forms small, dark, black, microscopic crystals, insoluble in water, alcohol, ether, ch form, and acids, but readily soluble in alkalies. From it hæ crystals can be readily prepared. It appears to be identical Virchow's *hæmatoidin*.

Strassburg's * experiments corroborate the statements of Pflüge Zuntz that on the addition of acids to blood the hæmoglobin unde oxidation and splits into hæmatin and albumen.

Adolf Järisch † gives the following as the arithmetical mean of careful researches on the composition of the ashes of the blood c dog:—Phosphoric acid anhydride 13·32 per cent., sulphuric acid a dride 4·01, chlorine 31·43, potash 3·83, soda 42·01, lime 1·25, mag 0·65, oxide of iron 8·34 per cent.

Dr. J. Richardson‡ concludes, from his experiments, that the blood-corpuscle is a cell composed of a cell-wall with contents a nucleus (or nuclei), which possesses the power of voluntary amo movement, is soluble in water, but is capable of slowly imbibing that and increasing to nearly double its normal size. The cell-wall of th puscle is a membranous envelope, insoluble in water, too thin to exh double contour with a magnifying power of 1200 diameters, but enough to restrict the movement of its contained granules. Its ex is somewhat adhesive, so that surfaces or particles coming in contact it are liable to become attached thereto. Some phenomena observe countenance to a theory that this membrane is dotted with m pores, which permit delicate threads of the soft protoplasm to l truded, and the edges of which, if the projection still continues duri amœboid movement, are carried outwards as a sheath to all exce extreme point of the narrow tongue-like process. The material pying the space between the capsule and the nucleus, denominat protoplasm of the cell (the fibro-plastin of Prof. Heynsius), is a jelly-like matter, in which the power of amœboid motion reside appears to be soluble in water and saline solutions in all propo and when freely diluted loses its amœboid power, which, howe regained in a majority of cases when the excess of fluid is withdr

The laws by which leucocytes take up and part with liquids a be simply those of the dialysis of fluids through animal membra endosmosis and exosmosis, as studied by Graham, on a larger s 1855.

Jurasz§ has investigated the action of bile and the biliary acid the blood-corpuscles, and finds that the white corpuscles res action of bile better than the red, hence the greater number former in the blood of the hepatic vein.

Manassein,‖ from the results of numerous comparative m ments, finds that the size of the red corpuscles diminishes in sep

* 'Pflüger's Archiv,' iv. 454.
† 'Stricker's Med. Jahrb.,' iv, 1871.
‡ Pamphlet, 1872.
§ Inaug. Dissert. Greifswald, 1871.
‖ 'Centralblatt,' No. 44, 1871.

poisoning during exposure to a high temperature and to an atmosphe
containing an excess of carbonic acid; whilst they enlarge under tl
influence of oxygen, and by the action of agents lowering the temper
ture of the body, as cold, quinine, hydrocyanic acid, and alcohol.

The action of quinine upon the white corpuscles of the blood h
been studied by Geltowsky,* Kerner,† and Binz ‡ All agree in statii
that it renders them round, darkly granular, motionless, and unexcitabl

Dr. A. Marcet§ maintains that blood is a colloid fluid, but that
also contains 7·3 per 1000 of diffusible constituents. The proportic
of diffusible constituents in serum is 9·25, these quantities diffusi
out in twenty-four hours. The proportion of chlorine is remarkab
uniform, being 3·06 per 1000. Blood contains phosphoric anhydri
and peroxide of iron in a perfectly colloid state.

Schmidt‖ devotes a long paper to the consideration of the cause
the coagulation of the blood. He considers that, besides the fibrin
genous and the fibrinoplastic substances, a third substance or ferme
must be present; this is generated either in the white corpuscles or
the plasma, but not in the red corpuscles.

Schiffer¶ demonstrates that no coagulation of blood takes place
the living vessels, even though considerable quantities of free fibrin
plastic substance be injected into them.

Boll** finds that, owing to deficiency of fibrinogen, the blood of t
fœtal chick does not coagulate before the twelfth or fourteenth da
and then only imperfectly. Hæmoglobin can be distinguished by t
spectroscope in the blood on the third day of incubation. Klein
describes the development of the earliest blood-vessels and corpuscl
Boyd Moss†† describes a peculiar ciliated hæmatozoon, which he fou
on several occasions in the blood of the Ceylon deer (Muntjac), and
R. Lewis§§ describes a peculiar kind of Filaria as being constant
present in vast numbers in the blood of patients affected with Chylur

The views of Waller and Cohnheim respecting the origin of pu
globules from the white corpuscles of the blood have met with
opponent in Dr. Duval,‖‖ who, from the results of his experiments up
the cornea, has arrived at the conclusion that the pus-corpusc
appearing in severe inflammation of that membrane result from t
proliferation of the plasmatic cellules of the corneal tissue, and not fr
the white corpuscles.

Lostorfer¶¶ has published some observations on the presence of fun

* 'Practitioner,' June, 1872.
† 'Pflüger's Archiv,' v, 27.
‡ 'Practitioner,' Sept. 1872.
§ 'Nature,' May 18, 1871.
‖ 'Pflüger's Archiv,' vi, pts. 8 and 9.
¶ 'Centralblatt,' No. 10, 1872.
** 'Reichert und Dubois Reymond's Archiv,' 1870, 718.
†† 'Sitz. der Akad. der Wiss.,' Vienna, 1871; and 'Humphry and Turner's Journ
1872, 438.
‡‡ 'Monthly Mic. Journ.,' 1871, vi, 181.
§§ Pamphlet, 1872.
‖‖ Brown-Séquard's 'Archives de Physiologie,' 1872, 176.
¶¶ 'Stricker's Jahrbücher,' 1871, 451; 1872, 96.

n the blood of man, showing that the germs of the sarcina ventriculi, or of a fungus which when cultivated is so closely allied to it as to be indistinguishable from it, exist in normal human blood. He has also written a paper to demonstrate the presence in the blood of syphilitic patients of peculiar corpuscles. His statements are endorsed by the high authority of Prof. Stricker, but have met with great opposition in Germany.*

Chalvet† gives the following analysis of the blood in scurvy:—Fibrin 4 per cent.; corpuscles 63—100 per 1000, instead of 130 per 1000; water 853·5, instead of 779; albumen 72·3 per 1000, instead of the normal 68·7.

Laschkewitz‡ describes the red corpuscles in a case of Addison's disease, large, pale, and presenting amœboid movements.

Mosler§ states that during life the blood of a highly leucæmic patient was alkaline; it only became acid after death.

Hoppe-Seyler‖ finds that white blood- or lymph-corpuscles contain glycogen so long as they exhibit movements, but when they become rigid they lose their glycogen and contain sugar.

Other papers on the blood-corpuscles are by E. Ray Lankester ('Quart. Journ. Mic. Sci.,' Oct. 1871), George Gulliver (idem, Jan. 1872), Braxton Hicks (idem, April, 1872), and Norris ('Transact. St. And. Med. Grad. Ass.,' 1871). Norris considers that in passing through the capillary walls the morphological elements of the blood obey the same physical laws as soap-bubbles. Mantegazza ("On the Chemica Composition of Pus and Pus-corpuscles," 'Mediz. Untersuchungen 1871, pp. 441).

Other papers are—P. Q. Brondgeest, "Over ongekleurde Kristalle in het bloed van bevroren Kikvorschen" (on the presence of colourle crystals in the blood of frozen frogs), in the 'Nederlandsch Arch voor Genees-en-Naturkunde,' 1870, v, 378, with a plate. M. Prey "Synthese des rothen Blutfarb-stoffs aus seinen Zersetzungsproduct (synthesis of the red colouring matter of the blood from the prod of its disintegration), in the 'Centralblatt für die Medicin. Wis schaft,' No. 10, 1871. Exner, "On the Development of Ammon Decomposing Blood," 'Sitzungsber. d. K. Akad. zu Wien,' lxii, i W. Marcet, "On the Constitution of Blood and Nutrition of Ti 'British Medical Journal,' June 17, 1871.

CIRCULATION. HEART. ARTERIES.

F. W. Beneke¶ gives the following as the results of near dred measurements of the arteries of adults:—1. The interr

* See for various papers on this subject Vaida and Biesiadecki in Wochens.;' Köbner, 'Berlin Klin. Wochens.,' 1872, No. 18.

† 'Union Médicale,' 1871, No. 121.

‡ Blutkörperchen in einem Fälle von Morbus Addisonii

§ chen Blutes.

ference of the aorta 1 centimeter above the valves, maximum 58·8 millimeters, minimum 31·0 millimeters; difference, 27·8 mm. 2. Internal circumference of the descending thoracic aorta 12 cm. below the origin of the left subclavian, max. 40·7 mm., min. 13·2 mm.; difference, 27·5 mm. 3. Internal circumference of the abdominal aorta 3 cm. above the bifurcation, max. 33·3 mm., min. 13·2 mm.; difference, 20·1 mm. 4. Internal circumference of the pulmonary artery 2 cm. above the valves, max. 58·0 mm., min. 30·7 mm.; difference, 27·3 mm. The smallest diameter of the arterial vessels was found most frequently in cases of chronic pneumonia and tuberculosis.

Cyon and Steinmann* find that the rapidity of the current of blood in the veins is nearly as great as in the arteries, and they describe the conditions which lead to variation in the rapidity of the current.

Dr. Miescher† conducted experiments to determine what influence section with preservation of certain portions of the spinal cord exercised upon the reflex action of certain nerves arising below the lesion upon the blood pressure. He concludes that the centripetal fibres of the sciatic nerves capable of reflectorially increasing the blood pressure run (in that portion of the medulla which extends between the third lumbar nerve and the last dorsal) either entirely or principally in the lateral white medullary columns of the cord. Again, he finds that in the same region of the cord the centripetal fibres of the left sciatic chiefly run in the right and in smaller proportion in the left lateral column, and *vice versâ*. Lastly, he shows that the fibres of this nature coming from the lower regions of the cord, run in its outermost portion, whilst those that enter at the higher planes run wholly or partially in the neighbourhood of the median plane.

Ceradini,‡ T. Lauder Brunton,§ and Fick,‖ have investigated the effects of heat on the action of the heart.

A. H. Garrod has published a paper on the construction and use of a simple cardio-sphygmograph;¶ and another on the mutual relations of the apex cardiographic and the radial sphygmographic traces.**

The remarkable increase in pressure in the arterial system occurring with stoppage of the respiration is generally accompanied by increased vascular contraction, and MM. Dogiel and Kowalewsky†† have shown that in curarized dogs there is also a coincident decrease in the rapidity of the arterial current in the crural artery.

Gatzuck's observations‡‡ made on dogs show that venæsection, especially from the anterior extremities, retards the mean velocity of the current of blood in the carotid and crural arteries and their branches, and, generally speaking, the mean pressure also falls, though it occasionally remains unaltered or even augments. The quantity and rapidity

* 'Bull. de l'Acad. des Sci. de St. Petersbourg,' xvi, 266.
† 'Ludwig's Arbeiten,' 5th Jahrg.
‡ 'Il Mecanismo delle Valvole Semilunari del Cuore,' Milano, 1871.
§ 'St. Bartholomew's Hospital Reports,' vii, 216.
‖ 'Pflüger's Archiv,' v, 38.
¶ 'Humphry and Turner's Journal,' v, 265.
** 'Proceed. Roy. Soc.,' xix, 318.
†† 'Pflüger's Archiv,' iii, 489.
‡‡ 'Centralblatt,' No. 53, 1871.

of the blood discharged powerfully influence the result. Wl
of blood has ceased, both the rapidity of the current and t
quickly return to their normal amount. With the diminisl
and pressure of the blood current the frequency of the h
augments, the sounds (especially the second) are diminish
sity, and the temperature of the body falls 2° or 3° Fahr.

M. Nolet,* in investigations made to determine the natu
of vascular murmurs, finds that a sound is produced even
uniform calibre, providing the rapidity of the current be
great. Thus, in a thick-walled tube of caoutchouc having a
about 2-3rds of an inch (18·75 mm.), a bruit becomes audib
rapidity of the current was about five and a half feet a sec
1700 mm.). The smaller the tube the greater the velocity
produce a bruit. Greater velocity was required with meta
with caoutchouc, in consequence of their greater smoot
presence of a constriction caused a bruit to become audible
diminished velocity of current, the sound being produced
and beyond the constriction, but chiefly beyond. The pr
dilatation also causes a bruit, but the velocity of the curr
great. The larger the dilatation the greater the rapidity
required, hence the absence or diminution of murmur in larg
The sound is most audible at the entrance to the dilatatio
cases the bruit is due to the formation of eddies.

Dr. Mayer† has investigated the action of strychnine o
pressure, and finds that it immensely augments it, which h
to its excitant action on the vaso-motor centre in the cereb
contraction of the smaller arteries, and not to the tetanic
of the voluntary muscles.

Ewald Hering‡ from his experiments on dogs, shows th
expansion of the lungs by insufflation through a canula in
which is then closed, causes increased rapidity of the he
He proceeds to demonstrate that this effect is not due to t
pressure exerted upon the external surface of the heart, n
tions in the condition of resistance in the different parts of
tion, nor to differences in the interchange of gases, nor to an
of the heart's position, but that it is effected reflectorially
vagi. The insufflation, he thinks, excites certain sensory
lungs, and these stand to the cerebral centre of the inhibit
the heart in the same relation that the fibres of the depres
to the cerebral centre of the vaso-motor nerves. Both of t
are in a state of constant excitation, which is lowered by the
the above-mentioned fibres. These fibres are therefore to
as inhibitory nerves for these centres. For other pap
Schmiedeberg, researches on the action of certain poison
atropin, daturine) on the heart of the frog.§

* 'Beiträge aus dem Physiolog. Laborat. zu Leiden,' 1871.

† "Studien zur Physiologie des Herzens und der Blutgefässe," Dr. S
in 'Stricker's Jahrbücher,' 1872, 111.

‡ 'Stricker's Jahrbücher,' 1872, 37.

§ 'Ludwig's Arbeiten,' 5th Jahrg.

Rüdinger, "Ueber die Topographie der beiden Vorhöfe und Einströmung des Blutes in dieselben bei den Fœtus."*

Dr. Garrod† describes a simple form of cardiograph, and gives results he obtained from its use.

RESPIRATION AND ANIMAL HEAT.

Dr. Boldyrew,‡ in giving the results of his researches upon histology of the mucous membrane of the respiratory organs, larynx, trachea, states, in opposition to others, that he finds mucous gl *do* exist on the convexity of the cartilages, though they are n flattened and expanded. He agrees generally with Puky-Axos describing the mucous glands as presenting the form of small sacs, s times divided dichotomously. The excretory ducts are lined by colu epithelium, the sacculi contain an epithelium in form of the demi described by Giaunuzzi in the salivary glands. Boldyrew also lymphatic follicles, like those forming Peyer's patches, in the mu membrane of the larynx.

Dr. Sikorsky,‖ in experiments undertaken to determine the phatics of the lungs, injected carminated ammonia into the lungs of li cats and dogs, which were then removed from the body and frozen. blood-vessels in the meanwhile being injected with a blue fluid. was found that, in regard to the *deep plexus* and in the bronchia, p liar cell-like structures intervened between the ordinary colu epithelial cells, which were tinted red, and that, either from t or from canals in immediate relation with them, minute vessels towards the membrane, and formed a close plexus in the mucosa submucosa, from which larger vessels arose, that accompanied bronchia to the roots of the lungs. In the alveoli similar cells tubes exist, but the plexus is characterised by having many dilatat and the vessels proceeding from it accompany the veins.

Leichtenstern¶ publishes the results of his inquiries into the ef of various conditions upon the volume of the expired air. He considers the influence of the vagi, and discusses Rosenthal's vi His experiments agree with those of Rosenthal, and show that se of the vagi, though it greatly diminishes the number of the respirat does not at once materially alter the absolute volume of air admi the depth of the respiration undergoing a corresponding increa consequence of the excitation of the medulla oblongata by the carbo blood. After a time, however (some hours), the muscles be fatigued, and cyanosis gradually sets in. He next produced a unila pneumothorax; in a weak rabbit great restlessness and dyspnœa produced; forty-five minutes after, the number of the respiration but little above the average, and soon sank below it, clearly on acc

* 'Journal für Kinderkrankheiten,' xxix, 402.
† 'Humphry and Turner's Journ. of Anat. and Phys.,' 1871, 265.
‡ Brown-Séquard's 'Archives de Physiologie,' 1870, 625.
§ 'Sitz. bericht. d. Wien. Akad.,' 1869.
‖ 'Centralblatt,' Dec. 3, 1876.
¶ 'Zeitschrift für Biologie,' vii, 197.

of rapidly supervening fatigue of the muscles, which ceased to to the most violent excitement of the respiratory centres produc cyanosed blood. In a strong rabbit similar dyspnœa occurred number of respirations rose from 32 to 48, and gradually to 77, quence of the greater vigour of the muscles. In both rabbits th of air breathed diminished to about one half, even the greater of the respiratory movements of the stronger rabbit not com for the absolutely smaller quantity inhaled. (3) In a thi experiments the tracheal tube was narrowed so as to dimi quantity of air admitted; the number of the respirations w diately diminished, their depth was increased, but a smaller volu was actually respired. (4) In another series of experiments the the abstraction of blood was investigated. These showed that, have been expected, the diminution in the number of oxygen-c blood-corpuscles occasioned in the first instance dyspnœa, but absence of red corpuscles soon reduced the interstitial chang tissues, a less supply of oxygen was needed, and consequently ratory volume diminished. Ultimately the disintegration of t and the absorption of oxygen was so far lowered that death to (5) In the fifth series Leichtenstern injected half a grain of under the skin of the back. This diminished the number of rations as well as their depth, and, therefore, the volume of th air, for the first half hour. Then the number of respirations after a time and to a certain extent the volume inspired, thou the normal amount. V. Bezold thinks these effects due to lo citability of the respiratory centre, but it may also be due to di tissue change, just as occurs during sleep. Leichtenstern thi causes operate. (6) The effects of section of the spinal cord the third and fourth cervical vertebra were examined. The nu depth of the respirations were found to be remarkably diminis is owing to diminished metamorphosis of tissue, which, aga tenstern thinks is attributable to the paralysis of the blood-v lowered blood pressure throughout the system. (7) The effec were examined, and it was found that immediately after exposu the general temperature of the body could have undergone an the number and depth of the respirations underwent great inc this even when the animal was wrapped up in warm cloths, show due to the excitation of the vagi in the lungs. When the cold some time, so that the general temperature sank, the numb respirations fell gradually below the normal amount, tho increased depth was maintained for some time. (8) Experim made on the action of heat on the volume of the respired air, found that the exposure to heat caused quickly a slight incre number of the respirations, owing, probably, to excitation of the lungs and the cutaneous nerves; but further augmentation did not increase their number till it became very high, when number and depth increased, apparently because high te augment tissue metamorphosis. (9) And lastly, a series of e were made on the volume of the respired air after the cutaneo tion had been suppressed by coating the animal with linseed o

tenstern corroborates the experiments of Laschkewitsch and Kriege that death results in these cases from cold, and the phenomena of th respiration corresponded with those observed in cold.

Quincke and Pfeiffer* show that with each *inspiration* the passag of the blood through the left ventricle is accelerated.

Schiff† maintains that section of the lateral columns of the cord a the level of the first cervical nerves arrests the respiratory movement of that side. He states also that, the lungs and vagi being remove from the body, electrical excitation of the vagi causes contraction of th parenchyma of the lung.

Landois‡ and Ceradini§ have experimented on the action of the hea on the respiration. The former finds that some air is expelled wit each systole of the heart, the latter that the effect is more complicate The opposite investigation, viz. the action of the respiration on the ci culation, has been pursued by Dr. Hering.‖

Experiments made in 1865 by MM. Estor and St. Pierre seemed t show that a considerable quantity of oxygen disappears from the bloo even whilst passing through the larger arteries. This statement i however, contested by MM. Mathieu and D'Urbain,¶ who maintain tha there is scarcely any appreciable difference in the amount of oxyge contained in the blood of the carotid and crural arteries; they hav however, found that when the difference in the size of two vessels very great the blood coursing through the larger one contains mo oxygen and less carbonic acid. In a second paper, in which they giv the results of their experiments on the influence of external temper ture on the amount of gas contained in arterial blood, they show tha in warm-blooded animals the quantity of oxygen absorbed by the bloo varies inversely with the temperature of the air they breathe, being in creased in winter and diminished in summer. This is conformabl with the physical fact that the exchange of gases through a moi animal membrane is more rapid at a low than at a high temperature.

M. Paul Bert** has studied, in the physiological laboratory of th Sorbonne, the influence that changes in the barometric pressure exercis on the phenomena of life. When warm-blooded animals are suddenl exposed to air so rarefied that it will only support 15 to 18 centim. mercury, convulsions, followed by death, are rapidly induced, with th appearance of bloody froth in the bronchi. If it be done by degree however, they will live in a very rarefied air (12 centim.) for som time, though all ultimately die from asphyxia. Birds cannot live at lower pressure than 18 centim. The lower the pressure the mo oxygen remains unexhausted.

Hermann Aubert, of Rostock,†† finds that the total amount of ca

* 'Reichert und Dubois Reymond's Archiv,' 1871.
† 'Pflüger's Archiv,' iv, 225.
‡ 'Berlin Klin. Wochensch.,' 1870, 9.
§ 'Annali Universali,' iv, 587.
‖ 'Sitzungsber. der K. K. Akad. zu Wien,' lxiv.
¶ Brown-Séquard's 'Archives de Physiologie,' 1872, 190 and 304.
** 'Rev. Scient.,' 2de sér., 1, 166.
†† 'Pflüger's Archiv,' vi, 1872, xi.

bonic acid eliminated from the skin of the whole body hours, at a temperature of 86° Fahr., is about 4 gramm whilst the amount of that given off by the lungs i grammes, or 13,500 grains.

Dr. Bernstein* remarks that no attempt has hitherto construct an apparatus approximatively resembling the which an exchange of gases takes place in the placenta details and a drawing of an ingenious instrument he with this object in view, and shows that the exchange c in fluids is extremely small.

Schiff† has made many researches on the influence of tion having an important bearing on the preservation c sion and compression of the brain and on the circulatio

Arthur Ransome,‡ in a paper on the mechanical c respiratory movements in man, shows that the clav upward than forward motion, and move less than ei ribs. The ribs move upwards more decidedly than th the upward dimensions of the respiratory movement o whole, are sufficiently accounted for by the upward rise chord length being taken as radius, their vertebral centres. The outward indications, as given by the steth probably to be accounted for by the simple radial ri ends of the costal cartilages, the sternal articulatior centre. The extent of the forward indications may l either on the hypothesis of the ribs becoming stra spiration or of their being previously *unbent* in expirati the actions of the intercostal muscles, the external inter the ribs upwards, (2) separate their anterior ends, (3) On the other hand, the action of the internal inter draw the ribs downwards, (2) to bring their anterior en together, (3) to bend them inwards. The diaphragm a lower ribs.

Mr. F. Le Gros Clark§ has also discussed some mechanism of respiration, especially showing the im passive tension of the diaphragm.

Dr. Rattray‖ enters into some interesting details more important physiological changes induced in the by change of climate. He concludes that natives of and especially the young, debilitated, and diseased, s tropics, particularly during the rainy season. Even leave them if they lose flesh and strength, and frequent beneficial climates or higher altitudes is advisable i in them. He concludes also that the primary effects o of climate is on the circulation, the blood being drawn heat and driven inward by cold, hence a difference

* 'Ludwig's Arbeiten,' 1870, 5th Jahrgang.
† 'Centralblatt,' 1872, 756.
‡ 'Proceed. Roy. Soc.,' xxi, 11.
§ 'Meet. Roy. Society,' May 25, 1871.
‖ 'Proceed. Roy. Soc.,' 1871, xix, 295.

activity of the external and internal organs, the function of the augmenting, those of the lungs and kidneys diminishing. respiration and circulation are both more languid, yet the tempera rises about 2° F.

G. v. Liebig* contributes a paper on the influence exerted upon respiration by increased or diminished atmospheric pressure. finds that residence at high altitudes has a tendency to develop respiratory power and the strength generally, hence it is useful in cases of diminished elasticity. For other papers on respiration Gustav Strassburg.† H. Sanders Ezn, on apnœa and dyspnc L. Goldstein.§ F. Kratschmer.‖

Wolffbey¶ finds the arithmetical mean of the tension of the carb acid in the alveoli of the lungs to be 3·56, and the tension in that of blood to be 3·43 per cent.

Clifford Allbutt** has contributed a paper on the effect of exercis the bodily temperature, showing in opposition to M. Lortet that regulating power of the organism holds good under great variation muscular exertion, though once or twice low temperatures were noti perhaps attributable to some accidental deficiency in combustion.

For other papers see Ransome,†† and especially Horvath.‡‡

DEGLUTITION.

The subject of the nerves presiding over deglutition has been fully investigated by MM. Waller and Prévost,§§ and they sum up t results in the following words:—(1) Feeble induced currents ap to the central extremity of one of the superior laryngeal nerves division cause arrest of the movements of the diaphragm in expira as stated by Rosenthal, and rhythmical movements of deglutition. Movements of deglutition may be produced by irritation of the cer cut extremity (*a*) of the recurrent nerves; (*b*) of the vagi, when irritation was made above the origin of the superior laryngeal ner (*c*) of the glosso-pharyngeal (at least in the dog and cat, but not in rabbit). (3) On laying open the buccal pharyngeal and laryn cavities, with a view of determining what nerves excite movemen deglutition on being irritated, and the results of dividing the se nerves successively, they found that in rabbits (*a*) the glosso-pharyn

* 'Archiv f. Klin. Med.,' viii, 445.

† 'Pflüger's Archiv,' vi, 1, 65.

‡ 'Maandblad voor Natuurwetenschapen,' 1870-71, 113; and 'Centralb 1871, 511.

§ "Ueber Warmdyspnoe," 'Centralblatt,' 1871, 678.

‖ "Ueber Reflexe von der Nasenschleimhaut auf Athmung und Kreislauf," ' tralblatt,' 1871, 58.

¶ 'Pflüger's Archiv,' 1872, 23, "Ueber die Athmung der Lunge."

** 'Proceed. Roy. Soc.,' xix, 289, 1871.

†† "On the Organic Matter of Human Breath in Health and Disease," 'Jo of Anatomy,' 1870, No. vi.

‡‡ 'Centralblatt,' 1872, Nos. 45, 46, and 47.

§§ 'Brown-Séquard's Archives,' 1870, 185 and 323.

rve exerts no reflex influence upon these movements
th nerve animating the velum palati is the principal
esiding over deglutition, since after section of one of th
tion could no longer be provoked by exciting the corre
f the velum palati; (*c*) that the superior laryngeal nerv
o the reflex actions of deglutition by its sensory branch
o the mucous membrane covering the glottis, the aryteno-
folds, the superior borders of the laryngeal cavity, and ch
distributed over the corniculated cartilages; (*d*) the rec
aids in the reflex phenomena of deglutition by its sens
(4) In the cat and dog cough is often observed on ele
trunk of the superior laryngeal nerve and that of the gloss
In the rabbit cough is occasionally observed on irritation
nerve.

M. Ebstein* has arrived at the conclusion that the
pyloric region of the stomach, formerly believed to se
really produce gastric juice like the true peptic glands,
epithelial lining of the same nature. The mucus of the
believes to be formed by the cells covering the general sur

Friedinger,† as the result of his researches on vario
animals, arrives at the conviction that the older views wer
that, in opposition to the statements of Ebstein, the inve
Heidenhain, or delomorphous cells of Rollett, are those
contain and form the pepsin.

See also G. Schwalbe,‡ R. Wiedersheim.§

Fick‖ regards the peptones as compounds capable of e
tion, and as supplying by their non-nitrogenous constitu
bustible materials for the muscles and other organs, the
constituents being speedily eliminated from the body.

Paschutin¶ demonstrates that the presence of a large
products of the metamorphosis of starch, as, for instan
and grape sugar, does not interfere with the actior
starch.

M. Lépine** finds that a ferment capable of conve
sugar is widely distributed throughout the body, th
which it appears to be totally absent being the crysta
most abundant in the blood, muscles, spleen, vitreou
and brain.

DIGESTION.

The phenomena of peristalsis have been reinv

* 'Centralblatt,' 1871, No. 6, and 'Pflüger's Archiv,' iv, 1

† 'Wiener Akad. Sitzber.,' lxiv, 1871.

‡ 'M. Schultze's Archiv,' viii, 92, "Beiträge zur Kenn
Darmwandungen, insbesondere der Brunnerschen Drüsen."

§ 'Die feineren Strukturverhältnisse der Drüsen in M
Inaug. Dissert., abstract in 'Centralblatt,' 1872, 278.

‖ 'Pflüger's Archiv,' v, 1.

¶ 'Centralblatt,' 1871, 372.

** 'Ludwig's Arbeiten,' 1870.

Brakel,* who maintains the existence of both peristaltic and of anti-peristaltic movements, and states that if a loop of the intestine of a cat be pinched a wave may be followed in both directions, travelling as far as to the pylorus and to the ileo-cæcal valve at the rate of an inch and a half in a second. The large intestine, the ureters, and the uterus, exhibit similar waves. H. Sanders Ezn,† in pursuing the same investigation, places the animal in water at blood heat, containing 0·6 per cent. of common salt, and opens the abdominal cavity. The intestine in his experiments was always at rest. After a little while slight wavy movements occurred; mechanical excitation had little effect. Violent movements occurred when the animal was asphyxiated, but these did not occur if the two vagi were previously divided in the neck. Excitation of the cut peripheric extremities induced contraction, commencing, for the most part, at the lower extremity of the duodenum and the upper end of the ileum. The right vagus induced the former, and the left the latter. Sanders Ezn observed antiperistaltic movements in one case of diarrhœa, but in all other cases the movements were peristaltic.

Dr. Dalton ‡ states that he has arrived at the following conclusions in regard to the sugar of the liver:—(1) Sugar exists in the liver, however rapidly it may have been examined after removal from the body, even in the living animal. (2) The quantity present, under these circumstances, is at least two and a half parts per thousand. (3) The hepatic sugar thus found does not proceed from the arterial blood circulating through the organ, but is a normal product of the tissue of the liver.

Gustav Strassburg § gives a modification of Pettenkofer's test for the detection of the biliary acids in urine, which he states is extremely delicate. It consists in dipping a piece of filtering paper into the urine, to which cane sugar has previously been added, drying it, and then dropping some concentrated sulphuric acid upon it. A beautiful violet tint appears.

V. Lair and Masius ‖ apply the term sterco-bilin to a new colouring matter obtained from the feculent contents of the intestines. Its absorption band is precisely limited by the lines b and F. It is soluble in water, alcohol and chloroform, insoluble in sulphuric ether.

A very long paper will be found in the 'Comptes Rendus' for May 29, 1871, by M. Payen, on the substances used as food during the siege of Paris. Amongst these blood in the form of blood-puddings, horseflesh, the dried albumen of eggs, and preserved fruits, occupied a prominent position.

A. Gusserow ¶ shows presence of urea in liquor amnii, and passage of iodine from stomach of mother into urine of fœtus.

For other papers see Leube,** Weiss,†† Maly.‡‡

* 'Pflüger's Archiv,' iv, 1871, 33.
† 'Centralblatt,' 1871, 479.
‡ In a paper read before the New York Academy of Medicine, June 15, 1871.
§ 'Pflüger's Archiv,' iv, 10.
‖ 'Centralblatt,' 1871, 369.
¶ "Zur Lehre vom Stoffwechsel des Fœtus," 'Archiv für Gynæc.,' iii, 241.
** 'Ueber die Ernahrung von Kranken durch Zufuhr des Ernährungs-materials per anum.'
†† "Zur Statik des Glycogens im Thierkörper," 'Sitzungsber. der Wien Akad. d. Wissenschaft,' lxiv, 1871.
‡‡ "Umwandlung von Bilirubin in Harnfarbstoff," 'Centralblatt,' 1871, 847.

A series of researches undertaken by Gustav Meyer* on mar logs, having for their object the determination of the relative valı different kinds of bread used in Germany, namely, rye bread (Ro brod, München), white wheat bread (Weizen-brod, Semmel), the I ford-Liebig bread, and coarse rye bread (Pumpernickel), led to result that, with equal weights of the dry substance, the white wh bread was decidedly the most nutritious of the four kinds of bread, under its use the smallest quantity of fæces were excreted, whils largest proportion of nitrogen was extracted in the process of dige Next to the wheaten bread in nutritive value was the rye bread nented with leaven (sour dough, Sauerteig), but containing no Then followed the Horsford-Liebig bread (prepared without leaver risen or made porous by the extrication of carbonic acid from the l bonate of soda and acid phosphate of lime and magnesia). And l the pumpernickel. When the question of cost came to be consi it was quite a different matter, the white wheaten bread standing a bottom of the list, and the Pumpernickel and Münich Rogger occupying the next place.

J. Ranke† has written an important pamphlet, the general purp which is to show that during the activity of any organ, not only i supply of blood to it increased, but there is a diminished supp blood to the remaining organs of the body, relations which he exp under the term "functional interchange" ("Funktions-wechsel") which have many important practical bearings.

E. A. Parkes‡ has made some further experiments on the eff diet and disease on the elimination of nitrogen, and shows that the nitrogenous food of a healthy man was reduced to one half f days, and he was then kept for five days more without nitrogen, able on the fourth day of such deprivation to do a very har work. Non-nitrogenous diet appeared to suit him well. Th became soft, but not altered in frequency.

V. Subbotin§ maintains, in opposition to Parkes, Anstie, a English observers, that when alcohol is ingested in considerable at least 16 per cent. is eliminated by the bowels, lungs, kidneys.

Dr. Dupré,|| on the other hand, shows that at least an oun alcohol may be entirely consumed in the system per diem, o that more than this quantity must be ingested before an quantity is eliminated by the urine and breath.

Paalzow.¶

Gen. Pleasanton, of Philadelphia, has a paper on the violet light on the growth of animals and plants.**

* 'Zeitschrift für Biologie,' vii, 1871, 1—48.
† 'Die Blutvertheilung und der Thätigkeitswechsel der Organe,'
‡ 'Proceed. Roy. Soc.,' xix, 1871, 349.
§ 'Zeitschrift für Biologie,' vii, 4.
|| "On the Elimination of Alcohol, Royal Soc.," see 'Nature,' v,
¶ "Ueber den Einfluss der Hautreize auf den Stoffwechsel," '
iv, 492.
** 'Academy,' March, 1872, 95.

GLANDS.

Mosler* finds—(1) That the spleen is not essential to life. (2) That after its ablation other lymphatic organs discharge its functions, especially the medulla of the bones. (3) That the spleen exerts a direct influence on the development of the corpuscular elements of the blood. (4) That it exerts no influence on gastric or pancreatic digestion.

Wedl† finds from his dissections that the bloodpath of the spleen is continuous, the blood passing from the arteries into capillaries, and from these into veins.

Stoff and Hasse‡ hold the opposite view, and maintain that the blood is discharged from the arteries into lacunar spaces.

Rosenstein§ suggests a new plan for determining whether urea is formed in and by the kidneys, namely, the extirpation of one kidney and analysis of the urine, the diet being the same. He finds that rather more urea than normal is at once excreted by the remaining kidney, showing that urea is not formed in and by the kidney, as it is incredible hypertrophy of the gland tissue could take place in the course of a few hours.||

Gscheidlen¶ finds that urea is distributed through every tissue in the body except the muscular, in which it is never present.

Dr. Salkowski** gives the following as the results of his investigations on the elimination of alkaline salts from the body. In normal conditions the urine is the channel through which by far the greater part of the alkaline salts leave the body. The quantity of soda always exceeds that of potash. In febrile states, however, the opposite obtains, the quantity of potash increasing to three, four, or even seven times more than in health. The salts of soda appear to be retained in febrile states. In certain affections (typhus), notwithstanding free diuresis, a large quantity of the alkaline salts are eliminated by the surface of the intestine. In fever there is an augmented disintegration of those tissues that contain a large excess of potash over soda.

Ustimowitsch's†† researches were undertaken on dogs which had been kept fasting for eighteen hours. The urine was collected from the ureters, and he found that the lowest pressure of the blood in the blood-vessels under which urine continued to be secreted was about 50 millimeters of mercury. The relative quantity of the several constituents of the urine varies with differences in the pressure of the blood in the vessels when it is excreted, with the section of the renal nerves, and with the resistance that the urine meets with in its discharge by the ureters. Moreover, probably by its action on the nerves, it causes a dimi-

* 'Centralblatt,' 1871, 369.
† 'Sitzungsber. der Wiener Akademie,' lxiv, 1.
‡ 'Centralblatt,' 1872, 753.
§ Idem, 1871, 353.
|| For a good paper on the "Origin of Urea in the Animal Body," see 'Academy, Sept. 1, 1872.
¶ Pamphlet, Leipsig, 1871, Engelmann.
** 'Centralblatt,' 1871, 289 and 754.
†† 'Ludwig's Arbeiten,' 1870, 5 Jahr

nution or absolute arrest of the secretion when the system is fully under its toxic influence.

Cyon and Aladoff* corroborate Eckhard's statement that diabetes occurs in dogs an hour after the section of the inferior cervical or upper dorsal ganglion. They consider it to be a phenomenon of paralysis of certain fibres passing from the spinal cord to the ganglia, and from thence to the ganglion stellatum through the annulus Vieussenii. They find vaso-motor nerves for the liver running in the annulus Vieussenii.†

Kupressow‡ inserted a tube into the bladder of otherwise uninjured rabbits, and tried what height of a column of water was required to overcome the resistance of the sphincter muscle. It amounted to 40—60 centimeters. If, however, the spinal column were divided between the fifth and seventh lumbar vertebræ the pressure required for the same purpose immediately fell to 12—16 centimeters.

M. Decaisne§ shows from observations made during the siege of Paris that the *milk* of woman has less butter, caseine, sugar, and salts, but more albumen, than natural, when the diet is insufficient.‖

Boll has given the histology of the lachrymal glands in 'Stricker's Manual,' Rollet¶ that of the gastric glands, Schwalbe** that of the duodenal glands, and Boldyrew†† that of the laryngeal and tracheal glands.

G. Lott‡‡ finds that the uterine glands of the pig, cow, sheep, rabbit, mouse, and bat, are lined with ciliated epithelium.

NERVES.

The structure of the nerves has been specially investigated by Ranvier§§ and Tamamschef.‖‖

M. Ranvier's researches were made upon nerves stained with picrocarminate of ammonia, with perosmic acid, and with nitrate of silver. He states that by means of these reagents he has been able to discover the presence of annular constrictions succeeding each other at the distance of about a twenty-fifth of an inch in all nerve-fibres. The constriction seems to be due to a thickening of the sheath of Schwann and at this point the white substance or medullary sheath, but not the cylinder axis, is interrupted. About midway between every two constrictions is a nucleus the outer surface of which is in contact

* 'Bull. de l'Acad. Imp. de St. Petersb.,' viii, 90.

† See also Eckhard, "Untersuchungen über Hydrurie," 'Beiträge zur Anat. und Physiologie,' vi, 53, and Maley, "Kunstliche Umwandlung von Bi[illegible]farbstoffe," 'Kolbe's Journ. f. Pract. Chem.,' v, 102.

[illegible]' 1872, 291; and 'Centralblatt,' 1872, 430. "Zur

actually fused with the sheath of Schwann, whilst its inner surface is received into a kind of cup formed of the white substance of Schwann. It would, therefore, seem that each interannular segment represents a cell. He finds, as Frommann and Grandry had already done before him, that the cylinder axis under the action of nitrate of silver presents alternately light and dark striæ not distantly resembling muscular tissue.

Tamamscheff excised nerve-fibres from the sciatic or brachial plexus and moistened them with serum. He finds that many nerve-fibres are bound together into a fasciculus by a sheath made of flattened cells which can be rendered visible by nitrate of silver, and which probably belong to the lymphatic system. Shortly after removal from the body the cylinder axis breaks up into a series of spheroidal bodies which he terms corpuscula nervea, and which are capable of spontaneous movements. They equal the red corpuscles of the blood in size. Pure albumen undergoes changes of a similar nature.

Engelmann* calls attention to certain contractions indicated by wrinkles in the sheaths of nerves, but not accompanied by shortening, when the nerves are removed from a living animal and quickly submitted to the action of induction shocks whilst lying in a weak solution of common salt. No wrinkles are visible in naked axis cylinders.

Rutherford† has investigated the varying excitability of the nerves in various parts of their course. He argues against Pflüger's avalanche theory, and maintains that the excitability of any point in the trunk of a spinal nerve, whether afferent or efferent, is inversely as the distance of that point from the nerve-centre.

Schlisch‡ finds that stretching the nerves of frogs with a weight of forty grammes had little effect on their excitability, but when the weight applied was greater than this the excitability rapidly diminished.

Schiff§ has again investigated the functions of the spinal cord as a conductor. He has satisfied himself that the posterior columns convey tactile impressions. When divided, no other part of the column can supply their place, and after a few days, when the disturbing conditions have subsided, tactile sensibility is entirely and permanently lost.

Dittmar|| concludes, from his experiments on rabbits poisoned with woorara, that a system of fibres exists in the spinal cord which, though they do not belong to the nerve-roots, are capable of responding to the action of direct stimuli, and can transmit the impulses thus generated along the spinal cord to the medulla oblongata, where they undergo reflection into motor nerves.

V. Willy¶ states that it is generally admitted that the degree of excitation of a nerve measured by the extent of contraction of the muscle to which it is distributed augments with the length of the segment of the nerve through which the current is transmitted after this is closed or after it is opened. He finds, however, that this only

* 'Pflüger's Archiv,' v, 1.
† Humphry and Turner's 'Journal of Anat. and Physiol.,' 1871, 329.
‡ 'Zeitschrift für Biologie,' vii, iv.
§ 'Centralblatt,' 1872, 774.
|| 'Ludwig's Arbeiten,' 1871.
¶ 'Pflüger's Archiv,' 1872, 275.

holds good for the descending current, whilst the converse obtains for the ascending current.

An important series of researches was undertaken by Fritsch and Hitzig* on the effects of stimulating various parts of the cerebral hemispheres by means of the galvanic current. The skull was removed with the exception of that part covering the superior longitudinal sinus in dogs. The irritation of the surface of definite regions of limited extent of one hemisphere called special groups of muscles on the opposite side of the body into action. Thus, irritation of one spot produced contraction of the muscles of the back of the neck, another the extensors and abductors of the fore leg, another the flexors and rotators, others the muscles of the hind leg and of the face. The irritation proceeded principally, if not exclusively, from the positive pole.

Heidenhain† investigated the changes of temperature in the brain resulting from excitation of the sensory nerves. He compared the temperature of the brain with that of the aortic blood by the thermo-electric method, and convinced himself that the brain constantly possesses a higher temperature than arterial blood, and that this difference increases considerably on excitation of the sensory nerves. There is a coincident fall in the temperature of the blood traversing the aorta, vena cava, and hepatic vein; this fall is occasioned in some way by the medulla oblongata, since it does not occur if a section of the cord be made just below the medulla. The fall in the temperature of the blood is accompanied by a rise in the pressure, both in the arteries and in the veins, and with an augmented rapidity of the blood-current in both. He attributes the changes in the temperature of the blood to an increased loss of heat from the surface.

Schiff‡ has continued his researches referred to in the last 'Biennial Report' on the extrication of heat during the functional activity of the nervous centre, and shows clearly that the augmented temperature depends on modifications of the circulation, and is primarily due to the vaso-motor nerves.

Dr. Franz Riegel,§ after repeating the experiment of division of spinal cord opposite the sixth cervical vertebra and corroborating fact of the general fall in the temperature of the body that follows operation, appears to think it may in part be due to paralysis of vaso-motor nerves leading to dilatation of the vessels and consec increased evaporation and exposure of the blood to the cooling infl of the air and radiation, but that it is chiefly due to an abs diminished production of heat, in favour of which view he various arguments.

Fick‖ gives an account of a series of experiments he mad effects of heating and cooling the blood passing to the vaso-m cardiac nerve-centres, and states that, to his surprise, he obta

* 'Reichert und Dubois Reymond's Archiv,' 1870, 300.

† 'Pflüger's Archiv,' iii, 504.

‡ Brown-Séquard's 'Archives de Physiologie,' January, March, M

§ 'Archiv,' No. 12, 1872.

negative results, though when such changes were induced in the blood passing to the respiratory centres very marked effects were observed.

Ludwig and Owsjannikoff* find that the vaso-motor centre extends in the medulla oblongata from 1 mm. under the corpora quadrigemina to 4 or 5 mm. above the calamus scriptorius and on either side of the middle line.

For a full abstract of Ludwig and Hafiz's paper on the vaso-motor nerves of arteries distributed to muscles in 'Ludwig's Arbeiten,' 1870. (See Brunton's report in 'Humphry and Turner's Journal,' 1872, p. 229.)

These experimenters show that the vaso-motor nerves distributed to the arteries supplying certain muscles may have a totally distinct origin and course from the proper motor nerve of the muscle. The biceps femoris, for example, is motorially innervated from the sacral plexus, but its vaso-motor nerves are contained in the lumbar plexus and run with the crural nerve, whence they pass to the branches of the femoral artery. The vaso-motor nerves distributed to arteries supplying muscles are easily exhausted, and when such arteries are exposed to high blood pressure they contract powerfully.

The question of trophic nerves has been discussed by Schiefferdecker,† Fischer,‡ Joseph,§ and Sinitzin.‖

Schiefferdecker gives the details of a series of six cases of injury of the nerves of the upper extremity. The trophic disturbances were atrophy of muscles, thickening and strong pigmentation of the skin, and augmented desquamation of the epidermis. The finger-nails became curved, like talons, with transverse ridges; the arm covered with hair, and there was an excessive secretion of sour sweat. The temperature was below the normal. He attributes some of these symptoms to lesion of certain trophic nerves, and others to disturbance in the distribution of the blood supply. Sinitzin shows that after section of the superior cervical ganglion of the sympathetic the conjunctiva and choroid are capable of resisting an amount of irritation to which they would otherwise speedily succumb. It is worthy of particular notice that Sinitzin found the symptoms of impaired nutrition in the eye consequent upon section of the fifth pair of nerves can be altogether abrogated by subsequent ablation of the superior cervical ganglion, a strong proof that such alterations and lesions of nutrition are not the direct result of the nerve injury, but depend upon impaired or modified blood supply. Brown-Séquard¶ observed gangrene of the ear in rabbits after injury of one corpus restiforme with hereditary influence on the young. He also observed pulmonary hæmorrhages after injury of one side of the pons.

Dr. C. Westphal corroborates M. Brown-Séquard's statements in regard to the artificial production of epilepsy in guinea-pigs. He finds that this condition may be induced by slight blows on the head, and attributes the convulsions to slight extravasations of blood which he finds in the medulla oblongata and cervical and even dorsal portion of the spinal cord.

* 'Ber. d. Sachs. Gesell. der Wiss.,' 1871, 135.
† 'Berlin Klin. Wochens.,' 1871, 160.
‡ Idem, 145.
§ 'Centralblatt,' 1871, 721.
‖ Idem, 161.
¶ 'Gazette Médicale,' 1871, pp. 14 and 24.

Klein* contributes a good paper on the distribution of the non-medullated nerve-fibres in the membrana nictitans. He places the perfectly fresh membrane in a one-half per cent. solution of chloride of gold for an hour, next cautiously transfers it to pure water, at the same time exposing it to a bright light for some days, and then brushes off the epithelium and mounts the specimen in glycerine. He describes four orders of nerves, the finest, which he traces to the internal surface of the capillaries and to the cells of the epithelial investment, are delicately varicose and require a No. 9 or 10 immersion lens.

Pouchet† believes he has traced the finest branches of certain nerves into the interior of the sarcodic masses forming the chromoblasts of flat fishes where they become connected with the nucleus and pigment-granules. Dr. Beale‡ in a paper in the same journal contests this statement.

Schöbl§ describes the termination of the nerves in the wing of the bat, and states that some form an extremely fine plexus, whilst others end in tactile corpuscles in close relation with the hairs, the former minister, he thinks, to sensations of temperature and pain, the latter to ordinary tactile impressions.

Th. Engelmann‖ gives the result of his investigations upon the innervation of the contractile gland-cells of the frog. He shows that these glands can be made to contract by direct irritation, by various kinds of excitation applied to the peripheric extremity of the divided sciatic nerve, and also reflectorially.

Pflüger¶ shortly discusses the objections that have been advanced against his views respecting the mode of termination of nerves in glands. To show the correctness of his statements he recommends the fresh submaxillary gland of the ox or sheep to be taken and fine sections made; these must be at once teased out with perosmic acid sp. gr. 1003, and covered with a thin glass in a shallow cell. In the case of the liver sections must be made from the fresh gland and placed in watch-glasses filled with Beale's carmine solution for fourteen days. Each section must then be washed with the above solution of perosmic acid and mounted.

Other papers on the nervous system are by G. Valentin,** Wundt,†† Bernstein,‡‡ J. König.§§

Richardson,‖‖ Navratil,¶¶ Michael Lavdovsky.***

* 'Quart. Journ. of Microsp. Sci.,' January, 1872.

† 'Monthly Microscopical Journal,' vi, 285. ‡ Idem, vii, 45.

§ 'Archiv f. Mikroskop. Anatomie,' vii, 1.

‖ 'Pflüger's Archiv,' iv, 1871, 3, and v, 498.

¶ 'Archiv für Physiologie,' 1871.

** "Positive und Neg. Stromschwankungen als Zeichen gewiss. Zersetzungsstufen der Nerv. und der Muskelmasse," 'Zeitschrift für Biologie,' vii, 110.

†† 'Mechanismus d. Nerven u. Nerven Centra,' Erlangen, 1871.

‡‡ 'The Effects of Stimulation of Nerve and Muscle,' 1871, Heidelberg.

§§ "The Effects of Electric Stimulation of Nerve and Muscle," 'Wien. Ak Sitzungsbericht,' lxii, 537; and Humphry and Turner's 'Journ of Anat.,' 1872, 2:

‖‖ "Theory of a Nervous Atmosphere," 'Med. Times and Gaz.,' i, 1871.

¶¶ "The Functions of the Laryngeal Nerves," 'Med. Times and Gaz.,' J 15, 1872.

*** "The Termination of the Nerves in the Urinary Bladder of the Frog," 'C tralblatt für die Med. Wiss.,' No. 3, 1871.

Ihlder* finds the nerves of the tongue in birds end in a ganglion-cell. He also describes a special form of bulb of ellipsoidal form with a simple connective-tissue investment and transversely placed nuclei. The nerve ends with a well-marked swelling.

R. Wolferz† arrives at the following results from his conclusions in regard to the innervation of the lachrymal glands:—1) The lachrymal is the proper excito-secretory nerve of the gland. (2) The subcutaneus malæ has the same but less energetic action. (3) After section of the lachrymal no reflex can be excited through the fifth, but readily through the optic. (4) Excitation of the sympathetic sometimes gives positive, sometimes negative results. (5) The secretion continues after section of the lachrymal and sympathetic (paralytic secretion). (6) Poisoning with woorara excites the secretion even after section of the lachrymal, though less than on the opposite side.

Ph. Lussana‡ adduces fresh evidence, chiefly of a pathological nature, in support of his views respecting the nerves ministering to the sense of taste. These cases show that the lingual in man presides over the gustatory sensibility of the anterior portion of the tongue, for in a woman in whom a portion was removed by Prof. Vanzetti, sensation was entirely abolished, though the form, colour, and nutrition of the organ remained unimpaired. But the lingual nerve in man is composed of the lingual proper and the chorda tympani, and there are cases of complete paralysis of the fifth on record in which, nevertheless, the gustatory sense was retained. On the other hand, there are cases of paralysis of the facial in which gustatory sensibility is lost, though the fifth is intact. Hence Lussana concludes that the sense of taste in the anterior part of the tongue is due to the chorda tympani.

Dr. Schapringer§ finds that on contracting his tensor tympani, over which he has voluntary control, all notes below seventy vibrations are rendered inaudible.

Other papers on the special senses are by Dr. Swan Burnett,‖ E. Masch, E. Kessel, and Prof. Rudinger.¶

A most elaborate paper, entitled 'Études d'Anatomie Comparée sur les Organes du Toucher chez divers Mammiféres, Oiseaux, Poissons et Insectes,' by M. Jobert, is contained in the 16th vol. of the 'Annales des Sciences Naturelles,' 1872.

At one of the meetings of the Medico-Chirurgical Society (Feb., 1872), Dr. W. H. Broadbent read a paper on the mechanism of thought. His theory was based partly on the results of dissection, partly on remarkable cases of loss of speech and paralysis. He considers that the impressions derived from the several senses are conducted by fibres radiating from the crus cerebri and central ganglia to the convolutions

* 'Reichert und Dubois Reymond's Archiv,' 1870, 238. Honigschmied, "Verbreitung der Becherformigen Organe der Zunge," in 'Centralblatt,' No. 26, 1872.

† Inaug. dissert., Dorpat, 1871, Abstract in 'Centralblatt,' 1871, 838.

‡ "Sur les Nerfs du Goût," 'Brown-Séquard's Archives de Physiologie,' 1872, 150 and 334.

§ 'Wien. Akad. Sitzungsber.,' lxii; and Humphry and Turner, 1871, 401.

‖ "On the Functions of the Cochlea," in the 'Medical and Surgical Reporter, Nov. 4, 7871.

¶ "Bewegungen des Gehörorgans," 'Centralblatt,' 1871, 593.

the longitudinal and Sylvian margins of the hemispheres, the intervening convolutions receiving no radiating or callosal fibres. In the former (or marginal convolutions) impressions are recognised as perceptions, whilst the perceptions derived from different sources are associated together to form ideas and become the subjects of thought in the latter (or intervening convolutions). Now, when it is desired to express these trains of ideas in speech, impulses are transmitted along those medullary fibres of the brain that extend from the supreme centres to the third left frontal convolution. In this the ideas are formulated into words, which are intellectual symbols, the centre selecting, as it were, the sounds appropriate to the expression of the idea. To produce the audible expression of these sounds that centre again in its turn propagates impulses to the corpus striatum, the great co-ordinating motor centre at the base of the brain. In order to speak, a great variety of muscular movements have to be co-ordinated, as those of the chest, larynx, tongue, and lips. The co-ordination is effected by the corpus striatum, which acts upon the requisite nerve-nuclei in the medulla oblongata. Lesions at different points of this chain of ganglia and fibres will, of course, be followed by different effects. The sequence of events on Dr. Broadbent's theory is—the formation of perceptions in the marginal convolutions at the summit of the sensory tract; the combination of these to form ideas and their employment in trains of thought in the convolutions withdrawn from immediate relation with the outer world; the propagation of excitations to the third left frontal convolution, leading to the selection of certain sound groups; the co-ordination in the *corpus striatum* of the muscular movements required to produce those sounds; and finally, the transmission of impulses from the several nuclei of the *medulla oblongata* to each individual muscle required to be brought into play.

Floegel* describes the fibres of the muscles of Trombidium, a species of red spider, as composed of a number of compartments formed by the sarcolemma on the one hand and successive transverse septa on the other. From septum to septum the contents of each compartment are as follows:—(1) A singly and slightly refractile substance, which becomes slightly coloured with perosmic acid. (2) A granule which stains deep with perosmic acid, and with its neighbours forms a transverse layer granules. (3) The same as (1). (4) The doubly and strongly refractive substance, becoming deeply stained excepting sometimes near its centre (5) As (3). (6) As (2). (7) As (1). To which may be added the deeply tinted transverse septum itself.

Merkel's† views as regards the structure of muscle agree in points with those of Floegel. He recommends for observation thoracic muscles of the fly or bee, and states that the phenomena their contraction may be distinctly seen when the fibres are in albumen. The appearances presented are—first, the terminal approximate; the lateral expansion of the fibrils then occurs gradually, and is accompanied by a narrowing of the part of the contractile substance. When the contraction is complete adjoining terminal disks are seen closely approximated; the pa

* 'Max Schultze's Archiv f. Mik. Anat.,' viii, 69. † Ider

by the contractile substance, which when the muscle is at rest is only dimly visible, becomes marked by a well-defined outline, and to superficial observation the decrease in length appears to be compensated for by the increase in breadth. This is, however, by no means the case, but the dimly defined spot representing the position of the contractile substance has become quite disproportionally attenuated, whilst the terminal disks are not, as might be expected, attenuated, but are actually thickened. It would hence appear that the muscular fibre has undergone a change in its histological character, and is not a mere shorter and thicker body than when at rest. The change consists in this—that the contractile substance, which in the resting fibre is accumulated around the median disk of each muscle-element, leaves this position during contraction, and becomes applied to the corresponding terminal disks. Hence, instead of each element containing as it does, during rest, an entire transverse stria in its middle, it exhibits during contraction one half of this stria at each end. Merkel recommends the chelæ of a crab to be immersed in alcohol; the alcohol penetrates but slowly, and although it causes the outer fibres to contract, the innermost ones are dead, and therefore relaxed, before the fluid reaches them, and sections show all the intermediate stages.

Dönitz* maintains the old view of fibrils as opposed to the compartment theory of the structure of muscle.

Wagener† admits the existence of Hensen's intermediate band, but maintains there are from two to eight adjoining striæ, which, though very fine, are constantly present. He describes the contraction of the muscles of an insect in the following terms:

The anisotropal substance with Hensen's intermediate stria and the adjoining striæ shorten and approximate to one another, and then the two isotropal striæ, which at first are separated by the broad anisotropal substance, become so closely compressed together that they are only divided by a faint line.

Danilewsky‡ shows that the quantity of albuminoid compounds in muscle diminishes, though to an inconsiderable extent, in tetanus. The alcoholic extract of tetanized muscle contains more nitrogen than that of resting muscle, which from various considerations renders it evident that during contraction there is an increased disintegration of the muscle-substance. During contraction a phosphorized body (lecithin) is produced. Warm alcohol withdraws from muscle exclusively the products of its retrogressive metamorphosis.

Mohammed Hafiz remarks that the vital properties of transversely striated muscular tissue render it *à priori* probable that its blood current should present some peculiarities. Opposite conclusions might be drawn from a consideration of the physical and chemical changes occurring during contraction in regard to the flow of blood through the muscles; on physical grounds it would be natural to suppose that less blood would traverse the tissue, whilst the larger amount of carbonic acid eliminated would rather seem to show that more blood traversed it.

* 'Reichert und Dubois Reymond's Archiv,' 1871, 434.
† 'Sitzungsberichte der Gesell. der Gesam. Nat. zu Marburg,' 1872, 25.
‡ 'Centralblatt,' No. 28, 1872.

Experiments undertaken by Sczelkow, Al. Schmidt, W. Sadler, and Genersich, in Ludwig's laboratory, are opposed to the exclusive adoption of either of these views, and show that great variations may occur in the rapidity of the current of blood traversing the arteries of muscles, as well as in its pressure, quite independently of the condition of contraction or relaxation of those muscles themselves. These experiments tend to show that great powers of contraction and dilatation must be attributed to the arteries distributed to muscles, and in accordance with this is the anatomical fact that the arteries of muscular tissue contain a very well-developed circular muscular layer. Mohammed Hafiz's researches were undertaken to ascertain the course and action of the motor nerves supplying the arteries. Dogs and rabbits were employed in the experiments, which were either in their natural state or poisoned with woorara, and the following results were obtained:—(1) During tetanic excitation of the spinal cord the circular muscular fibres of the arteries distributed to muscles contract slightly and transiently, and never to so great an extent as the circular fibres of the arteries distributed to the skin and abdominal viscera. The contraction, if any, is very slight in curarized animals. (2) The nerves of the circular muscles are very easily exhausted. This is well shown by the fact that a wound of a muscle, provided no large artery is injured, as a rule bleeds but little; but severe hæmorrhage occurs, under the same circumstances, if the spinal cord be irritated, the amount depending on the increase of blood pressure caused by the stimulation of the cord. The more this augments the more the arteries of the skin and the abdominal viscera contract, whilst those of the muscles permit free bleeding to take place from them, the hæmorrhage lasting as long as the blood pressure is above the normal. (3) Irritation of the spinal cord caused distinctly observable increase in the rapidity of the current of blood through the muscular arteries, as well as by augmented pressure, cessation of the irritation being followed by diminution of the rapidity of the current. (4) The circular muscular fibres of the arteries distributed to muscles expand and contract independently of the nerves supplied to them, and probably as a consequence of the direct excitability of their own proper muscular fibres. (5) The nerves of a muscle and the nerves of the artery supplying that muscle seem, in some instances at least, to have a different origin. (6) From a medium condition the muscles of the vessels may either contract or dilate; contraction often occurs if the vessel has been long in a state of dilatation, owing to augmented pressure. It was invariably observed after irritation applied to the spinal cord, this producing, first, temporary contraction, then dilatation, and finally very strongly marked and persistent contraction. The increase of pressure in the arteries distributed to muscles is, no doubt, in part due to the contraction that occurs in the cutaneous, abdominal, and other arteries, when the spinal cord is irritated.

Dr. Marcet observes* that muscular tissue is formed of three different classes of substances; the first includes those substances which constitute the tissue proper, or the portion of flesh insoluble in the preparation of the aqueous extract, and consisting of albumen and phosphoric anhy-

* 'Nature,' May 18.

dride with varying proportions of potash and magnesia; the second class includes the same substances as are found in the tissue proper, and in the same proportions relatively to the albumen present in that class, but existing in solution and in the colloid state; the third class includes the same substances as are found in the two others, and, moreover, a small quantity of chlorine and soda, which, although relatively minute, is never absent. The constituents of this class are crystalloid, and consequently diffusible, the phosphoric anhydride and potash being present precisely in the proportion required to form a neutral tribasic phosphate, or a pyrophosphate, as the formula $2KOPO_5$ can equally be $2KOHOPO_5$.

Dr. Marcet further believes that flesh contains in store a supply of nourishment equal to about one third more than its requirements for immediate use, this being apparently a provision of nature to allow of muscular exercise during prolonged fasting. He maintains that the numbers representing the excess of phosphoric anhydride and potash in blood over the proportion of these substances in an equal volume of serum, in the regular normal nutrition of herbivorous animals, appear to bear to each other nearly the same relation as that which exists between the phosphoric anhydride and potash on their way out of muscular tissue; and he points out that vegetables used as food for man and animals, such as flour, potatoes, and rice, transform phosphoric anhydride and potash from the crystalloid or diffusible into the colloid or undiffusible state, and that it is only after having been thus prepared that these substances appear to be fit to become normal constituents of blood and contribute to the nutrition of flesh.

A final remark, and one which he considers to be worth consideration, is the fact established by the whole of his investigation, that there is a constant change of rotation in nature from crystalloids to colloids, and from colloids to crystalloids.

Petersen,* as the result of numerous analyses of the flesh of sheep, pigs, horses, and oxen, finds that the amount of water varies in these different species as much as 7·36 per cent.; calves have the most (79·29 per cent.), pigs the least (71·93 per cent.). The proportion of nitrogen varies but little. Thus, the fresh muscle of oxen contains 3·29 per cent. of nitrogen, that of the pig 3·25, of the sheep 3·15, of the calf 3·18, and of the horse 3·48 per cent. The proportions are somewhat different if the fat is first removed, the average for fresh meat, taking all the animals, and the fat being removed, is 3·35 per cent., which equals 15·39 for the dry muscle also free from fat.

Dr. H. Weiske† finds that the administration of food poor in lime or phosphoric acid, for a considerable period (six weeks), to goats produced no appreciable change in the composition of the bones, nor was their fragility increased. The animals, nevertheless, lost their vigour, and it was probable that if the use of such food had been long continued pathological appearances would have been produced. On the other hand Dr. Subbotin‡ finds that the kind of food administered to pigeons, calves, dogs, and man, exercises a considerable influence on the amount of hæmoglobin contained in the blood, highly albuminous compounds

* 'Zeitschrift für Biologie,' viii, 166. † Idem, vii, 179.

‡ Idem, vii, 185.

increasing its amount, pure farinaceous and other non-nitrogenous food diminishing it. Rabbits, on the average, have 8·41 per cent. of hæmoglobin, well-nourished dogs 13·80 per cent., man 13·16 per cent. In anæmia and chlorosis it may fall as low as to 4·63 per cent.

Prof. Haughton,* in his lectures on animal mechanics, states that according to his experiments the muscles of the arms of a young man accustomed to athletic exercise are capable of raising 94·7 lbs. per square inch of their sectional area. The muscles of the leg are stronger and can lift 110·4 lbs. per square inch of sectional area; those of the abdomen 107 lbs.; he takes the mean at 104 lbs. A single ounce in weight of the muscle of the human heart will lift 25·576 lbs. through the height of one foot in a minute.

Heidenhain,† after discussing the views of Harless, Cyon, and others, respecting the tone of the voluntary muscles, gives the results of his experiments, which have led him to the conclusion that the tone of muscles is simply the expression of their healthy nutrition, and has no relation with their nervous supply.

Nigetiet and Heppner‡ observe that Heidenhain long ago showed that the production of acid in acting muscles augments with their tension during contraction. They made experiments to determine whether the same holds good for the other compounds resulting from the metamorphosis of muscular tissue, and, adopting Helmholtz and Ranke's mode of procedure, that is, comparing the alcoholic with the watery extract (the latter decreasing, the former increasing, during the period of activity), they found that in muscles under otherwise precisely similar circumstances, but of which one was weighted whilst the other was not, the former yielded more alcoholic and less watery extract than the other.

Dr. A. Hénocque§ states the nerves supplying smooth muscular tissue are distributed in three plexuses—(1) a basal or fundamental plexus, containing numerous ganglia situated externally to the muscle; (2) an intermediate plexus; and (3) an intra-muscular plexus, situated in the interior of the fasciculi of smooth fibres. The terminal fibres are everywhere alike, dividing dichotomously, and ending with a slight enlargement or button, or in a punctiform manner. These swellings are situated in different parts of the smooth muscle, often near the nucleus, or on the surface, or between the fibres.

M. A. Sawicki‖ shows that the quantity of uric acid excreted by the kidney is in relation with the food rather than with the amount of exercise taken.

Dr. W. Ogle¶ shows that both the right leg and right arm are used preferentially by many animals as well as by man, and in man before any education is commenced. From various observations made on right- and left-handed individuals he has arrived at the conclusion that, like the faculties concerned in speech, those associated with the predominance

* 'Brit. Med. Journ.,' May and June, 1871.
† 'Pflüger's Archiv,' iv—x. ‡ Idem, iii, 574.
§ Brown-Séquard's 'Archives,' 1870, 397.
‖ 'Pflüger's Archiv,' 1872, vi.
¶ 'Proceed. of Roy. Med. and Chir. Soc.,' vi, No. 8.

of the right hand and leg are due to structural peculiarities which are located in the left hemisphere of the brain. The greater development of the left hemisphere he attributes to its receiving a freer supply of blood than the right.

Oser and Schlesinger* state, as the essential result of their experiments, that movements of the uterus may be induced by arrest of the respiration, by rapid hæmorrhage, and by arrest of the passage of the blood to the brain. They found that the best animals for the purpose of experiment were kittens under the influence of woorara.

Valentin† shows that the muscles of the embryo possess their true and normal currents with negative variation on contraction long before their development is complete, and so also nerves, which as yet do not appear to possess a medullary sheath, possess the power of transmitting motor impulses, and also exhibit their normal electric currents and negative variation during activity.

Hermann‡ finds that living muscle offers very much greater resistance to an electric current passing in a direction across the fibres than to one transmitted along them, the proportion being as 7 to 1; in the nerves it is as 5 to 1.

Hugo Kronecker, "On the Laws of Muscular Exhaustion," in the 'Monatsberichte d. k. p. Akad. d. Wissenschaften zu Berlin,' 1870.

Fick§ "On the Change in the Elasticity of Muscle during Contraction."

An important contribution to our knowledge of the physiological effects of severe and protracted muscular exercise, especially in regard to its influence on the excretion of nitrogen, has been made by Dr. Austin Flint,‖ as the result of his analysis of the food consumed and urine passed by Mr. Weston, during a remarkable attempt which this pedestrian made to walk 400 miles in five consecutive days. Although he did not accomplish this task, he succeeded in walking 317¼ miles in that space of time. By the aid of several eminent physicians and scientific men of New York, Mr. Weston was subjected to most careful observation for five days before the walk, for the five days of the walk, and for five days after the walk, and the results are given in a series of carefully prepared tables. The general conclusions of Dr. Flint's inquiry, in this case at least, are decidedly opposed to the observations of Fick and Wislicenus and many modern experimenters, whilst they corroborate the old view of Liebig that the elimination of nitrogen is to a great extent a measure of the waste of the nitrogenized elements of the tissues, and that this is increased by exercise.¶

Prof. Humphry's** lectures, and still more recently published treatise on myology, contains the results of many careful dissections of the muscles of the Cryptobranchus Japonicus, the Uromastix spinipes,

* 'Stricker's Med. Jahrbücher,' 1872, 30.

† "Histological Researches," 'Zeitschrift für Biologie,' vii, 1871, 105.

‡ 'Pflüger's Archiv,' part vi, 1872.

§ "Ueber die Aenderung der Elasticität des Muskels während der Zuckung, 'Pflüger's Archiv,' 1871, 301.

‖ Pamphlet reprinted from the 'New York Med. Journ.' for June, 1871, 91.

¶ See an abstract in 'Amer. Journ. of Med. Sci.,' Jan., 1872.

** 'British Med. Journ.,' 1872.

Lepidosiren annectens, Dog-fish, Ceratodus, and Pseudopus, with an able exposition of the general relations and arrangements of the muscles in vertebrate animals.

Franz Hoffman* discusses and answers affirmatively the question whether fat supplied in the food enters directly into the fat-cells, to be stored up in them.

The following references to various papers that were analysed for this Report, but which were excluded by the limited space accorded to it, may, perhaps, prove useful to some readers.

HISTOLOGY.

Bizzozero, "Beiträge zur Kenntniss der sogenannten endogenen Zellenbildung."†—G. V. Ciaccio, 'Nuove Richerche sull'interna tessitura dei Tendini.' Bologna, 1872. Pamphlet.—Dr. M. Lipsky, "Ueber die entzündlichen Veränderungen des Epithels der Harn-kanälchen."‡—Dr. Adickes, "Zur Histologie des Bindegewebes." Inaug. Dissert., 1872.—Ranvier, "Des Elements Cellulaires des Tendons et du Tissue conjonctif lache (tissue cellulaire)."§—Boll, "Untersuchungen über den Bau und die Entwickelung der Gewebe."‖—Mitchell Bruce, "On the Structure of Tendon."¶—MM. Philipeaux et A. Vulpian, "Sur le mode d'accroissement des os longs."**—Dr. Stretzoff, "Beiträge zur normalen Knochenbildung."††—Dr. Heitzmann, "Studien am Knochen und Knorpel."‡‡—Dr. W. Flemming, "Ueber Bildung. und Rückbildung der Fettzelle im Bindegeweben."§§—V. Ebner, "Ueber die Anfange der Speichel-gänge in den Alveolen den Speicheldrüsen."‖‖—E. Kyber, 'Untersuchungen über den Lymphatischen Apparat in der Milz,' viii, 568.—Dr. Dudukaloff, "Beiträge zur Kenntniss des Verwachsungs processes unterbundener Gefässe."¶¶—Dr. Durante, "Untersuchungen über die Organisation des Thrombus."***—V. Brunn, "Ein Beitrag zur Kenntniss des feineren Baues und der Entwicklungsgeschichte der Nebennieren."†††—Th. Eimer, "Ueber dei Nerven-endigungen in der Haut der Kuhzitze."‡‡‡—J. Schöbl, "Das Äusser Ohr des Igels als Tastorgan,"§§§—E. Rindfleisch, "Zur Kenntniss der Nerven Endigung in den Hirnrinde."‖‖‖—A. K. v. Ajtai, "Ein Beitrag zur Kenntniss der Geschmacksorgane."¶¶¶—Dr. E. Elin, "Zur Kenntniss der feineren Nerven der Mundhohlenschleimhaut."****—J. Gottstein, "Ueber den fein. Bau und die Entwickelung der Gehörschnecke der Säugethiere und des Menschen."††††—Dr. Nuel, "Beitrag zur Kenntness der Säugethier schnecke." ‡‡‡‡

* "Der Uebergang von Nahrungsfett in die Zellen des Thierkörpers," 'Zeitschrift f. Biologie,' viii, 153.
† 'Stricker's Jahrbücher,' 1872, 160.
‡ In idem, 155.
§ Brown-Séquard's 'Archives de Physiologie,' 1869, 471.
‖ 'Max Schultze's Archiv. für Microscop. Anat.,' vii, 275.
¶ 'Quarterly Journal of Microscop. Science,' April, 1872.
** Brown-Séquard's 'Archives de Physiologie,' 1870, 531.
†† 'Centralblatt,' 1872, 449.
‡‡ 'Stricker's Jahrbücher,' ii, 339.
§§ 'Schultze's Archiv,' vii, 1871, 32.
‖‖ Idem, viii, 481.
¶¶ 'Stricker's 'Med. Jahrb.,' 1872, 150.
*** In idem, 143.
††† 'Schultze's Archiv, viii, 618.
‡‡‡ Idem, viii, 643.
§§§ Idem, viii, 295.
‖‖‖ Idem, viii, 453.
¶¶¶ Idem, viii, 465.
**** Idem, vii, 1871, 382.
†††† Idem, viii, 145.
‡‡‡‡ Idem, viii, 200.

REPORT ON PRACTICAL MEDICINE.*

BY

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A. Diseases of the General System.

Inflammation and Suppuration.

In the course of the past two years the Vienna school seems almost to have monopolised the subject of inflammation. Heiberg ('Wien. Méd. Jahrb.,' 1871, 7) has made numerous experiments on the process which takes place in the regeneration of the epithelium of the cornea in frogs, fowls, and white rats. He finds, after scraping off the epithelium from the centre of the cornea with a knife, that the process of new growth is complete in three days, and sometimes, in birds and mammals, even earlier. From the observations of Stricker and Norris, those writers had already come to the conclusion that, in the inflamed cornea of the frog, the corpuscles might be transformed during the inflammatory process into amœboid cells. Hansen (ib., 212) carried out the same experiments on the cornea of rabbits and cats, and finds that hand-in-hand with the appearance of young cells the corneal corpuscles change their form, and at last entirely disappear, while their nuclei undergo division.

Carmalt and Stricker (ib., 428) set up inflammation in the cornea of frogs and rabbits by passing a string through the centre of the cornea and through the sclerotic, and give the results of their observations on the formation of the blood-vessels, which in the former animals took place in from thirteen to fifteen days, and in the latter from five to eight, after the string was introduced.

Genersich (ib., i) thinks, from his experiments, that the so-called fixed corneal cells correspond to true spaces, which communicate by branching canals, and in which the wandering cells can move.

Durante's experiments (ib., 321) were made in reference to (1) the physiological nutrition of the walls of vessels, (2) the change taking place pathologically and anatomically during the process of acute inflammation in them, and (3) the relation between the inner tunic and

* In a large number of cases I have been compelled to omit abstracts of papers. As far as possible I have preserved those of foreign origin, and have included those English ones which may be most easily referred to in the bibliography at the end of each subject. Unless stated otherwise, the references are to volumes and pages. A table of the errata in the last report will be found at the end of this.—A. B. S.

the blood in ligatured portions of vein. He finds that the endothelium, the muscle-cells, and the connective-tissue corpuscles, all take part in the proliferation which occurs in inflammation of the wall of the vein; and in reference to the third point, the blood in the ligatured portion remained fluid as long as no changes took place in the endothelium, but coagulated immediately the latter became inflamed.

Samuel has made numerous experiments into the results obtained by the injection of various secretions, &c. A reference to his papers will be found below.

Güterbock ('Arch. f. Klin. Chir.,' xiii, 240) answers the remarks made by Gussenbauer (ib., xii, 811) on his former work regarding the more delicate processes which take place in the healing of wounds in the cornea by primary intention.

Bizzozero ('Gaz. Méd. Ital. Lomb.,' 1871, 62) calls attention to the fact, already observed by Buhl, Remak, Eberth, and others, that in pus, especially when it has been taken from an epithelial or epidermal surface, certain large bodies may be seen enclosing a nucleus, and sometimes a very large number of cells, unlike the pus-cells, either in their appearance or chemical reaction. He opposes the endogenous development of these cells, as put forward by the above writers. In the purulent contents, mixed with blood, of the anterior chamber of the eye, he has found large cells containing red blood-cells.

Duval ('Arch. d. Phys.,' 1872, iv, 168) strongly opposes Cohnheim's views as to the origin of pus. He holds that the "plasmatic cells" of the cornea do not remain fixed, but undergo hypertrophy and proliferation, and that the appearances of cells having passed through the blood-vessels in the mesentery is due to the mechanical rupture of lymphatic sacs in the operation of withdrawing the membrane from the abdomen.

Norris ('Proc. Roy. Soc.,' xiv, 556) concludes—1. Both white and red corpuscles pass out of the vessels through apertures, which can neither be seen before their ingress into, or after their egress from, the vessel-wall, but only during the period of transit. 2. An essentially primary step in the process is that the corpuscles shall adhere, or, more properly, cohere, to the wall of the vessel. 3. These cohering corpuscles shall subsequently be subjected to pressure from within.

V. Mosengeil, "Beobachtungen über örtliche Wärme-Entwickelung bei Entzündungen," 'Arch. f. Klin. Chir.' xiii, 70. Samuel, "Die Subcutane Wirkung der Secrete," 'Centralbl.,' 1871, 433. Id., "Die örtliche Wirkung des Eiters und der putriden Stoffe," ib., 305. Id., "Putrides Gift in den Sputis," ib. 435. Id., "Die Localisirung der Entzündungen," ib., 692. Güterbock, "Untersuchungen über Sehnenentzündung," 'Wien. Med. Jahrb., 1871, 22. Lang, "Untersuchungen über die ersten Stadien der Knochenentzündung," ib., 34. Hutob, "Untersuchungen über Knörpelentzündung," ib., 399. Yeo, "Untersuchungen über die Structur entzündeter Lymphdrüsen," ib., 30. Parsons, "Catarrhal Inflammation," 'Brit. Med. Journ.,' 1871, i, 473. Flemming, "Ueber Veränderungen der Fettzelle bei Atrophie und Entzündung," 'Virch. Arch.,' lii, 568. Bizzozero, "Saggio di Studio sulla cosidetta endogenesi del Pus," 'Gaz. Med. Lomb.,' 1872, 33; Mays, "The Pathology of Inflammation," 'New York Med. Journ.,' xvi, 155.

Contagion and Infection.

Chauveau ('Compt. Rend.,' lxxiii, 116; 'Gaz. des. Hôp.,' 1871, p. 181) had already (see last 'Bienn. Rep.,' p. 35) shown that the contagious property in poisonous fluids consists of solid particles held in suspension by them. His experiments were made in the three following sets:—

1. If a poisonous fluid capable by injection under the epidermis of producing a well-marked and circumscribed local lesion of the skin be mixed with a large quantity of water; and if this fresh solution be employed for inoculation, the lesion is either not produced at all, or it is produced with exactly the same characters. In a certain number of inoculations, all made under exactly the same conditions, a greater or less number were unsuccessful according to the degree of dilution of the fluid.

2. The solution having been washed and filtered, and the corpuscles thus separated, inoculation with the precipitate was successful, while with the filtrate it failed; consequently, the solid particles alone, *i. e.* without serum, possess the property of contagion.

3. If a poisonous liquid be covered with a layer of distilled water, the substance in solution in the former is rapidly diffused. Inoculation with this water gives negative results.

Chauveau has attempted to prove that the same holds good for air: that poisonous substances are not dissolved in it, but suspended in it in the form of small particles. The poisonous substance was put into a capsule standing on a flat disk of glass and covered with a small bell glass or cylinder. The whole was placed on a sand bath heated to 40° C. (104° F.). The evaporated fluid was condensed on the walls of the cylinder, the condensation being furthered by moistening the latter with ether. He made the experiments chiefly with variola and sheep-pox, always with the same result, that inoculation with the distilled fluid had no effect. He also repeated the experiments with the poison of epizootic typhus (cattle plague?) with the same negative results, having inoculated with the water extracted from fluids supposed to be extremely virulent, *e. g.* the tears, the discharge from the nose, and the matters from the diarrhœa stools.

In another and a very long paper ('Gaz. Heb.,' 1871, viii, 638) the same writer concludes from numerous experiments that small organisms do not occur either in the blood or in the pathological products of infectious disease. The experiments were made with fresh lymph and the blood and pus of variola, the sheep-pox, glanders, and cattle plague. The specific poison of an infectious disease resides in its cell-elements. In summing up the paper he lays down that—

Among contagious diseases there is a large class of maladies properly called parasitic, due to the presence and the multiplication of minute animals and vegetables (trichinæ; psorosperms of the silkworm, &c.). These are not to be placed among the virulent or poisonous.

Another class is composed of the septic diseases, which ought to be looked upon as produced by the rapid multiplication in the blood of fermenting proto-organisms, by whose decomposition more or less severe poisoning is set up.

Lastly, there is a class, the subject of his present paper, which comprehends the poisonous affections, distinguished from the preceding by the fact that their intimate cause is to be found only in the granular protoplasm of the new formations.

Sanderson ('Thirteenth Rep. Med. Off. Privy Coun.,' app. p. 48, and 'Quart. Journ. of Micr. Science,' xi, 323), assisted by Ferrier, has further investigated the conditions under which microzymes (bacteria) are developed in various solutions, and in organic tissues and liquids. The experiments are given in full, and lead to the following conclusions: whereas fungi (torula, &c.) may be transmitted from one solution to another by means of the air, such is not the case with microzymes; there is no developmental connection between the two, and their apparent association is one of mere juxtaposition. If proper precautions, boiling the solution, *e.g.* Pasteur's, and rinsing the vessel with boiling water, are taken, the solution may be exposed for a length of time in an open vessel, without any development in it of bacteria, while there will occur a free growth of penicillium. If a drop of ordinary distilled water be added to the solution used, bacteria will be developed in abundance; but such development will not follow if the distilled water be previously boiled.

The same writer ('Nature,' 1873, Jan. 9) relates minutely fifteen experiments made in his presence by Bastian with infusions of hay and turnip. He is content to have established, at all events, to his own satisfaction, "that by following Bastian's directions, infusions can be prepared which are not deprived by an ebullition of from five to ten minutes, of the faculty of undergoing those chemical changes which are characterised by the presence of swarms of bacteria, and that the development of these organisms can proceed with the greatest activity in hermetically sealed glass vessels, from which almost the whole of the air has been expelled by boiling."

Lostorfer ('Wien. Med. Jahrb.,' 1871, 451) has developed organisms resembling sarcina ventriculi from the blood of several healthy persons. He insists that they are not introduced from without, and tries to support his view by reference to cases recorded by Virchow, Zenker, and Cohnheim, as to the occurrence of sarcinæ in the lungs.

Ferrier ('Brit. Med. Journ.,' 1872, i, 98) has found sarcinæ in the blood of man, rabbits, cats, dogs, and frogs, drawn from the carotid vessels, and placed under a temperature of 100° F. He agrees with Lostorfer as to the presence of numerous refractive granules, single or in pairs, from which sarcinæ are developed; and he finds that the vaccine particles constantly seen in fresh lymph multiply under a cultivation, and assume the characters of sarcinæ, with which he holds them to be identical.

Bastian (ib., 123) holds that the blood is not the only source of sarcinæ, as Ferrier is disposed to think; nor does he look upon sarcina as a living organism. One of the essential conditions for its occurrence seems to be the presence of a phosphate in the fluid in which it is to form.

Nepveu ('Gaz. Méd.,' 1872, 32) has found bacteria (*B. punctatum*,

Ehrenb.) in the blood of four patients affected with erysipelas, and remarks on the diffusion of the poison.

Bennet (J. Henry) illustrates, from his own personal history ('Lancet,' 1871, ii, 537), the fact stated by Paget, that poisonous fluids can exert their influence on the body by imbibition through the skin without any breach of continuity. On several occasions the poison, from post-mortem and uterine examinations, seemed to pass down a hair into a hair-bulb; at any rate, a hair was always in the centre of the painful spot. Erysipelas of the arm and chest followed, with considerable constitutional disturbance.

In a lecture on "Dust and Disease" ('Brit. Med. Journ.,' 1871, i, 661), Tyndall, after some experiments and observations on the polarisation of light by fine dust, by the sky and the coarser particles of smoke, referred to the theory as to the parasitic character of contagious disease. He believes strongly in the use of a respirator in infectious places. In one constructed for him the air enters the mouth through cotton wool, and by a light valve, which is lifted by respiration, the expired breath passing out by a second valve.

Liveing ('Brit. Med. Journ.,' 1871, ii, 365) holds that the poison of contagious diseases is an organised poison, each organic particle of which must have a definite period of existence, and then die a natural death, only able to propagate its species during a comparatively short period of its existence. Allowing the difficulty of proving the same for the malarial poison, he yet thinks that its vegetable origin is shown by the facts of the localisation of this poison to certain districts, of the necessary condition of a certain elevation of temperature for its development, and of the apparent incompatibility of its coexistence with the central part of well-populated towns. It seems as if the congregating together of inhabited houses effectually excludes the virus. He illustrates this statement from Rome. Here the central part of the city is perfectly free, at all seasons of the year, from malarial poison, though it abounds in a concentrated form almost within a stone's throw of those spots which are perfectly healthy.

Eimer, "Ueber die Ei- oder Kügelförmigen sogenannten Psorospermien der Wirbelthiere, Ein Beitrag zur Entwickelungs-geschichte der Gregarinen und zur Kenntniss dieser Parasiten als Krankheitsursache," Würzburg. Bastian, "Epidemic and Specific Contagious Diseases," 'Brit. Med. Journ.,' 1871, ii, 400. Id., "The Modes of Origin of Lowest Organisms; including a Discussion of the Experiments of M. Pasteur, and a reply to some statements by Professors Huxley and Tyndall," London and New York, 1871. Condie, "Immunity from the Action of Morbific Agents" (effects of revaccination), 'Amer. Journ. Med. Sci.,' lxi, 124. Hallier, "Die Parasiten der Infectionskrankheiten," 'Zeitschr. f. Parasitenkunde," iii, 157. Weigert, "Ueber Bacterien in der Pockenhaut," 'Centralbl.,' 1871, 609. Lex, "Ueber Fermentwirkung der Bacterien," ib., 1872, 291. Waldeyer and Cohn, "Uber Bacterien und Vibrionen," 'Berl. Klin. Woch,' 1871, 532. Manassein (M.), "Beiträge zur Kenntniss der Hefe und zur Lehre von der Alkoholischen Gährung," Stuttgart. Manassein (W.), "Ueber die Beziehungen der Bacterien zum Penicillium glaucum und über den Einfluss einiger Stoffe auf die Entwickelung dieses letzteren," Stuttgart. Sanderson, "On Leucocytes," 'Med. Times and Gaz.,' 1871, i, 1. Marcet, "An Experimental Enquiry into the Constitution of the Blood, and the Nutrition of Muscular Tissue," 'Proc. Roy. Soc.,' xiv, 465. Jarisch, "Untersuchungen über die anorganischen Bestandtheile des Blutes," 'Wien. Med. Jahrb.,' 1871, 425. Ranse, "Du role des Microzoaires, et des Microphytes dans le Genèse, l'Évolution, et la Propagation des Maladies," Paris, 1870, pp. 124.

Inoculability of Tubercle. Tuberculosis?

Paraskeva and Zallonis ('Gaz. Méd.,' 1872, 197) give the results of five experiments on rabbits, which confirm Villemin's researches. Tubercular matter mixed with the food, or inoculated, provoked deposits of the same kind in the lungs. In a sixth experiment on a fisherman, who was suffering from gangrene of the great toe, dependent on obliteration of the femoral artery, they inoculated him with tuberculous matter in the upper part of his thigh. He died thirty-seven days later, and tubercles were discovered in his lungs and liver. Ranse, who transmits the notes of these cases, rightly insists on the frequency with which "tubercles" are found unexpectedly at post-mortem examinations.

Biffi and Verga ("Nuovi tentativi d'inoculazione del tubercolo grigio," 'Gaz. Med. Lomb.,' 1871, 272), working in the Veterinary College at Milan, inoculated two mules, a cow, two sheep, and two dogs, with grey tubercle taken from human subjects, which was rubbed up in water and injected hypodermically. The place at which the fluid was introduced became inflamed and œdematous. The cow was killed two months, the other animals three months after the operation, but not a trace of tubercle was found in either of them. Sangalli seems to have obtained the same negative results in his experiments on twelve mice.

Papillon, Nicol, and Laveran ("Recherches expérimentales sur l'inoculation de la tuberculose," 'Gaz. des Hôp.,' 1871, 342) have repeated the experiments of Cohnheim and Fränkel on rabbits and guinea-pigs. The results agree with those obtained by these observers, by Colin, Vulpian, Clark, Lebert, Empis, Fox, Sanderson, and Waldenburg, and distinctly contradict the idea defended by Villemin as to the specific nature of tubercle. Cheesy matter is in all their cases, they think, the first starting-point of the general tuberculosis. The lymph-glands in the neighbourhood of the original wound were always the first to undergo the cheesy change. They have never been able to produce an eruption of tubercles on serous membranes.

Bogolowsky ("Beitrag zur Impfung mit tuberkulösen Massen," 'Centralbl.,' 1871, 97) made parallel experiments on rabbits with so-called tuberculous pus, cheesy matter, and miliary tubercle. Both sets had symptoms of fever: the latter ceased after a few days in those inoculated with poisoned serum; in the rest symptoms of inflammation followed, resulting generally in death. The most frequent appearances found were purulent bronchitis, with circumscribed purulent deposits in the lungs, and sometimes in the liver.

Crisp ('Path. Soc. Trans.,' xxiii, 312) vaccinated eight hens twice, and subsequently inoculated them with smallpox matter. Five died in the course of the year, and presented, post-mortem, the appearances of general tuberculosis.

Goodhart's experiments ('Edin. Journ.,' xvii, 305) on guinea pigs and rabbits do not add much to what has already been shown in the inoculation of tubercle by former observers. Nor do the cases he has recorded as occurring in the human subject throw any further light on the presence, together, of miliary tuberculosis and cheesy deposits or pus, whatever views may be held as to the connection between the two.

The eleventh case, that of a man whose affection seems to have been probably phthisis ex hæmoptysi, is imperfect. Yet the author relies upon this case as a typical example of a class "made up of all cases of acute tuberculosis, where no existing cause in the shape of pus can be discovered." He thinks that all chronic pneumonic changes consist in part of adenoid formation.

Birch-Hirschfeld ('Arch. d. Heilk.,' xii, 501) records eight cases of miliary tuberculosis occurring after typhoid fever, with a full description of the microscopical appearances found; and another case of the same affection (ib. 556) following epididymitis in a soldier aged 24.

Mandl, "Du Tubercule comparé à quelques autres Produits pathologiques," 'Bull. de l'Acad. de Méd.,' xxxv, 823. Fonssagrives, "Du rôle de l'Élément inflammatoire dans le Production des Tubercules pulmonaires," ib., 827. Klein, "Quelques Considerations sur la Tuberculose," 'Thèse de Strasbourg,' 1870. Moxon, "Inflammation and Tubercle," 'Med. Times and Gaz.,' 1871, i, 64 and 153.

Temperature and Fever.

Pilz ('Jahrb. f. Kinderheilk.,' iv, 414) finds that the temperatures taken in the rectum of healthy children almost confirm the fact found also in adults: that the temperature rises from the first hours of the morning towards noon, reaches its highest in the first hours of the afternoon, and then in the evening begins to sink again. As a rule the elevation is not continuous but interrupted. The greatest rise occurs in the hours from 7 to 8, or even up to 9 a.m. The fall of the temperature begins as Finlayson had already shown (see last 'Bien. Rep.') almost always at six, seldom at seven in the evening. This fall is generally more sudden than in adults; the difference in temperature amounts in the first hour sometimes to 1·1°. The night temperatures, which are incomplete, agree with those given by Finlayson.

Manassein ('Pflüger's Archiv,' iv, 283) subjected rabbits to swinging, the swing making from twenty-eight to thirty double vibrations in the minute. In all cases the temperature fell: its maximum fall being 1·2° C., its minimum 0·3° C., and its mean 0·66° C. The effect was distinct in fifteen minutes, and lasted from half an hour to two hours. The tendency to sleep was very marked. The animals were closely enveloped in wool before swinging, to prevent any fallacy in the experiment of mere depression of temperature from renewal of the air; parallel experiments with and without wool are given. As a more practical experiment he injected decomposing matter into rabbits, thus causing pyrexia, and by swinging them afterwards, reduced their temperature even to the normal degree.

From experiments made on 174 different animals the same writer ('Centralbl.,' 1871, 689) concludes that circumstances that increase the temperature of the body diminish the size of the red blood-cells, as for instance septicæmic poisoning, exposure to a high temperature, or inclosure in a space surcharged with carbonic acid; while on the other hand breathing oxygen, exposure of the whole body to cold, the administration of hydrochlorate of quinine, hydrocyanic acid, and alcohol, which lower the temperature, cause also an increase in the size

of the red cells. Hydrochlorate of morphia formed an exception, causing diminution of temperature, and of the size of the red cells. This is to be explained probably by the inhibitory influence this drug exerts on the respiration (carbonic acid poisoning). Lastly, acute anæmia (blood-letting from an artery) causes increase in the size of the cells.

In a more or less popular paper on the "Effect of Exercise upon the Bodily Temperature" ('Alpine Journ.,' 1871, May), Allbutt thinks that in his own case two depressions of temperature—one during a descent, the other during a gentle ascent of lower slopes—were due to lack of fuel. He thinks that with a full and assimilating stomach, good heart and lungs, a warm-blooded animal is not liable to lose the balance of his forces during wholesome exertion. He thinks that the thermometer is the best test of the latter in different persons. From his own case he concludes that hard exercise in a mountainous district accelerates the morning rise, carrying it ·2° or ·3° above the average level of health; that it also favours an earlier occurrence of the evening fall, if the exertion be ended, carrying it ·1° or, perhaps, ·2° below usual night level; and that any depression during exertion signifies either deficiency of food or inefficiency of internal work (and see 'Proc. Roy. Soc.,' xix, 289).

Mignot ("L'abaissment de la température comme signe de mort;" 'Gaz. Hebdom.,' 1871, 676), after remarking that Laborde had asserted that the temperature during life never fell below 30° C. (86° F.), allows his observation to be right as far as it has reference to adults. The researches of Roger, Hervieux and Mignot himself, show that in newly born children, whether affected or not with sclerema, death was preceded by a period of gradually increasing depression of temperature, the thermometer descending sometimes as low as 23° C. (41·4° F.). He concludes that a depression of 5° below the normal carries with it a fatal prognosis. He thinks that the fact may be useful in determining death, and suggests that a line should be marked on thermometers made on purpose, at 30° and 21°; and that no certificate of death should be given till the axillary temperature has been proved to have fallen as low as the first number in adults and the second in the newly born.

Liebermeister, Virchow, and Senator indulge in a discussion on temperature and the means of regulating it: the references to their papers may be found below.

Pudzinowitsch ('Centralbl.,' 1871, 211) gives the results of twelve experiments on the relation of the cutaneous perspiration to temperature in febrile conditions, without any certain conclusions.

Vergely ('Gaz. Hebdom.,' 1871, 489) gives a case of intense headache, accompanied by elevation of temperature. A girl, aged 21, had complained for two or three months of pain in the head, attacking her at first at intervals, but constant for several days before her admission into hospital. The whole head was affected, but especially the supra-orbital and temporal regions. She complained also of pain in the lumbar region. Her pulse was 90; but there was nothing abnormal in her general state otherwise. The temperature during the first five days reached 39·8° C. (103°·6 F.) and 40° C. (104° F.), and was accompanied by irregular and frequent pulse. On the cessation of the head-

ache after seventeen days, the morning temperature was 35·4° (95·7° F.), and the evening 37·2° (98·9° F.). His remarks on the cause of the elevation of temperature are scarcely precise.

Murchison, writing on the "period of incubation of typhus, relapsing fever, and enteric fever" ('St. Thom. Hosp. Rep.,' ii, 23) concludes that, 1, the period of incubation of typhus varies in duration in different cases, in a large proportion of them being about twelve days, rarely, if ever, exceeding three weeks, and occasionally being entirely absent, the symptoms in the last case commencing almost at the instant of exposure to the poison; that, 2, the period of incubation of relapsing fever is more variable, and, on the whole, shorter than that of typhus, a latent period also not occurring in some cases; that, 3, the period of incubation of enteric fever is most commonly about two weeks, though it may be less, not exceeding one or two days. He suggests that the period of incubation may vary according as the poison is introduced by the alimentary canal or by the lungs.

Begbie ('Edin. Journ.,' xviii, 249) calls attention to the "swelled leg of fevers." He first sketches the history of the affection from its earliest notice by Burke and Cheyne, in 1821, to the present time, and shows that a swelling of the lower extremity different from ordinary œdema or anasarca has been recognised by various writers as occurring in the advanced stages of typhus and typhoid fevers. It has never been described as a sequela of relapsing fever. From a general view of cases recorded by others, and those observed by himself, he considers himself warranted in classifying them as follows:—1, cases dependent on vascular obstruction (*a*) venous or (*b*) lymphatic; 2, cases in which inflammation of the areolar tissue exists. He gives shortly cases in illustration of these three varieties, and refers in conclusion to the treatment, which consists in rest, bandaging, anodyne fomentations, the application of leeches, a general dietetic regulation, and the careful watching of any complications which may arise.

Liebermeister, "Zur Lehre von der Wärmeregulirung," 'Virch. Arch.,' lii, 123. Virchow, "Wirkung kalter Bäder und Wärmeregulirung," ib., ib., 133. Liebermeister, "Wirkung kalter Bäder;" (1) "Ein Brief an den Herausgeber;" (2) "Antwort des Herausgebers," ib., ib., 432. Senator, "Kritisches über die Lehre von der Wärmeregulirung," ib., liii, 111. Liebermeister, "Nochmals zur Lehre von der Wärmeregulirung," ib., ib., 434. Id., "Untersuchungen über die quantitativen Veränderungen der Kohlensäure-production beim Menschen" (second article), 'Deut. Arch.,' viii, 153. Silujanoff, "Zur Fieberlehre (Experiments on the changes in quantity of Carbonic Acid, Nitrogen, and Chlorine, in artificially induced Fever)," 'Virch. Arch.,' lii, 327. Manassein, "Chemische Beiträge zur Fieberlehre," 'Centralbl.,' 1871, 852. Decaisne, "De la Température chez l'Enfant Malade," 'Gaz. Med.,' 1871, 197. Hawkes, "Observations on the Temperature of the Insane," 'Lancet,' 1872, i, 429. Demarquay, "Modifications imprimées à la Température Animale par les grands Traumatismes," 'Gaz. des Hôp.,' 1871, p. 373. Redard, "De l'Abaissement de la Température dans les grands Traumatismes par Armes à Feu," 'Arch. Gén.,' 1872, i, 29, and 'Gaz. des Hôp.,' 1872, 33. Bourneville, "Abaissement de la Température rectale chez un Homme exposé au froid extérieur," 'Gaz. Méd.,' 1872, 8, and 'Gaz. des Hôp.,' 1872, 34. Peter, "Des Températures élevées excessives dans les Maladies," 'Gaz. Hebd.,' 1872, ix, p. 54, 84 (and see correspondence between him and Jaccoud, ib., 72). Riegel, 'Ueber den Einfluss der Curare auf die Körpertemperatur," 'Centralbl.,' 1871, 402. Senator, "Ueber Wärmebildung und Stoffwechsel im gesunden und fieberhaften Zustande," ib., 737. Gatzuck, "Ueber

den Einfluss der Blutentleerung auf die Circulation und die Temperatur des Körpers," ib., 833. Ogle, "On the Temperature in certain Affections of the Nervous System, but especially in Tetanus; with Observations and Notes on the Influence of Remedies upon the Temperature of the Body," 'Clin. Soc. Trans.,' 1872, v, 71. Nunneley, "On the Modifications produced in the Temperature of the Body by the local application of Cold and Heat," 'Med.-Chir. Trans.,' liv, 303. Gee, "On the Heat of the Body," 'Brit. Med. Journ.,' 1871, i, 271, &c. Bradley, "Effect of Rocking on Temperature," ib., ii, 725. Squire, "Observations on the Temperature of the Body in Health and Disease," ib. i, 32. Wilks, "The Use and Abuse of the term 'Fever,'" 'Lancet,' 1871, i, 10. Jessett, "Cold Water Treatment of Fevers," ib., ii, 655. Winternitz, "Der Einfluss von Wärmeentziehungen auf die Wärme production," Wien. Med. Jahrb.,' 1871, 180, and 'Wien. Med. Woch.,' 1871, 170.

Infection from Poison of Animals.

Terry, "Wasp-stings (two cases, one of a lady stung in the mouth, the other swelling of a leg from foot to knee, from sting in the calf)," 'Brit. Med. Journ.,' 1871, ii, 255. Drury, "Wasp-stings" (seven cases, with treatment), ib., 351. "Death from the Sting of a Bee" (female, æt. 55), 'Lancet,' 1872, ii, 135. Posada-Arango, "Le Poison de Rainette des sauvages du Choco," 'Arch. de Méd. Nav.,' xvi, 203. Id., "Note sur les Scorpions de la Columbia," ib., ib., 213. Fayrer, "On the Action of the Cobra Poison," 'Edin. Journ.,' xvi, 623. Anderson, "On the Use of the Bromide of Potassium in Rattlesnake Bites," 'Amer. Journ. Med. Sci.,' lxiii, 366. Wright, "On the Katipo or Poisonous Spider of New Zealand," 'Med.-Chir. Rev.,' xlviii, 227.

Hydrophobia.

In a preliminary article on the pathology of hydrophobia Rudnew ('Centralbl.,' 1871, 321) asserts that the presence of foreign bodies, straw, hairs, &c., is not, as is generally assumed, an indication of the disease; that it is by no means constant, and is not a diagnostic sign. He has examined microscopically all the organs in the bodies of dogs which died from or were killed during an attack of rabies. He holds that it, like almost all other infectious diseases, is connected with a profound disturbance of all the important organs. He confines himself in this article to the kidneys; in all his cases there was a highly developed parenchymatous inflammation; the peculiarity of which was that both cortical and pyramidal portions were alike affected, presenting all the conditions necessary for the production of uræmia. He thinks it extremely probable that the latter may be the cause of many of the symptoms. A second peculiarity was the degenerative character of the nephritis; in the most advanced and fatal stage of the disease the urinary tubules were completely bare of epithelium, and filled with a granular, fatty, degenerated material.

Allbutt showed to the Pathological Society ('Lancet,' 1872, i, 82; 'Path. Soc. Trans.,' xxiii, 17) microscopic specimens from the cerebral convolutions, the central ganglia, the medulla oblongata, and the cord, from two cases of hydrophobia. The same morbid conditions, in different degrees, were found throughout:—1, evidences of great vascular congestion with transudation into the surrounding tissues; 2, hæmorrhages of various size, with apparent fibrous exudation; 3, small gaps due to disintegration of nerve-strands. The spleen was enlarged in both cases.

McGill, "Two Cases of Hydrophobia," 'Lancet,' 1871, i, 537. Sainter, "Chloral in Hydrophobia," ib., 1872, i, 537. Elder, "Cases of Hydrophobia, with remarks,"

'Brit. Med. Journ.,' 1871, ii, 642. Fothergill, "Case of Hydrophobia, Death, Remarks," ib., ii, 264. Ellis, "Two Cases of Hydrophobia treated by Hydrate of Chloral," ib., i, 474. Brumwell, "Case of Hydrophobia following the Bite of a Cat," ib., ii, 434. Lafont, "Observation d'un cas de rage" (five months after bite of mad dog, premonitory symptoms two days, well-marked hydrophobia, and death twenty-four hours later), 'Gaz. des Hôp.,' 1871, 542. Plass, "Zwei Fälle von Lyssa" (with autopsies), 'Berl. Klin. Woch.,' 1871, 217. Auchenthaler, "Ein Fall von Lyssa" (in girl, æt. 6 years, from bite of cat, two months' incubation, autopsy), 'Jahrb. f. Kinderkr.,' 1871, p. 222. Verri, "Il Cloralio nell'Idrofobia," 'Annali Univ. di Med.,' vol. 218, p. 340.

Hay Fever.

Waters ('Brit. Med. Journ.,' 1872, i, 4) gives his experience of hay fever as it attacks himself. He found in very hot dry summers he was free from the affection, while he suffered from it most in warm and moist weather. One of his symptoms was insomnia, marked by a peculiar periodicity; no matter what time he went to bed he could get no sleep before half-past three or four o'clock; after that time he slept soundly till seven or eight.

Gueneau de Mussy ('Sur la Rhino-bronchite spasmodique ou fièvre de foin;' 'Gaz. Hebd.,' 1872, ix, 9) insists on its relation to gout. He thinks that hay fever represents a process taking place upon the mucous membrane of the nose and bronchi, akin to certain eruptions observed on the skin of gouty patients. In support of his view he gives ten cases where individuals who had either had gout themselves, or in whose families gouty affections were frequent, were attacked with hay fever regularly every summer, the attacks alternating in part with the attacks of gout. Several times afterwards an exanthem, an urticaria or a pityriasis appeared on the head, and extended to the cavities of the nose and mouth.

Ferber ('Arch. de Heilk.,' xii, 555), in referring to Helmholtz's experience (see last 'Biennial Rep.,' 51), finds the same good effects from the employment of a solution of quinine, but is inclined to look upon the affection not as due to the presence of parasites, but as a neurosis of the vagus allied to whooping-cough.

Thompson, "Notes of a Lecture on Hay Fever," 'Brit. Med. Journ.,' 1871, i, 58. Feargus, "Treatment of Hay Fever by Sulphurous Acid," ib., ib., 90.

Dengue (Breakbone Fever; Rheumatic Scarlatina).

Poggio. "La Calentura roja observada en sus apariciones epidemicas de los años 1865 y 1867, Madrid, 1871 (for review and full abstracts from this work see 'Arch. de Méd. Nav.,' xvi, 146, and 'Med.-Chir. Rev.,' 1872, January, p. 151). "The Epidemic of Dengue at Aden, 'Lancet,' 1871, ii, 652. Vauvray, "La Dengue à Port-Saïd et à Aden," 'Arch. de Méd. Nav.,' xvii, p. 75.

Meningitis Cerebro-spinalis.

Eulenberg ("Ueber Meningitis Cerebro-spinalis in Regierungsbezirke Köln;" 'Berl. Klin. Woch.,' 1871, 63) writes on the spread of cerebro-spinal meningitis in the district of Cologne during the autumn and winter of 1865. The affection was of a truly epidemic character; in all there were forty-two cases of it, presenting the general symptoms

and course of the disease. Whether it be possible to divide it into several forms, as has been proposed (inflammatory, abortive, apoplectic and paralytic), remains undecided. The author thinks that the variations in the course of the disease should be referred partly to the influence of individual constitutions and tendencies, partly to prevailing affections ("constitutio anni" of Sydenham.—*Rep.*). He calls attention to the unmistakable presence, in all the cases observed, of a rheumatic cause and the coincidence of the epidemic with the comparatively frequent occurrence of "rheumatic tetanus." The treatment consisted of attention to the individual case, local bleedings, cold applications to the head, and the employment of calomel or narcotics as the case demanded.

Kotsonopulos ("Bericht über die in Nauplia im Anfange des Jahres 1869 aufgetretene Meningitis cerebro-spinalis epidemica;" 'Virch. Arch.,' lii, 65) gives an account of an epidemic of this affection which broke out in Greece in the winter of 1868-69. Nauplia was attacked earliest and most violently. The first cases were diagnosed as those of pernicious malarial fever, or simple meningitis. After tracing the spread of the disease, the writer describes its symptoms and course; the affections of the joints frequently preceding the meningeal symptoms; the injection of the conjunctivæ and eyelids at the commencement of the disease, noticed in almost all cases; the remittent or intermittent character of the disease; the furious delirium, which drove the patients not only from their beds but into the street. Generally speaking, the disease set in suddenly without any prodromal symptoms. The articular pains were almost always present, generally attacking the wrist or knee-joint, or both at the same time. The pain was increased by pressure, the joint was swollen and sometimes red, and fluctuation could be detected. The joint affection began sometimes before the meningeal symptoms, or on the second or third day, and continued throughout the attack. The tetanic cramp of the muscles of the neck and back was a characteristic and, so to speak, a pathognomonic symptoms. Clonic cramps and convulsions occurred in young children. Paralysis of any kind, with the exceptions of blepharoptosis and strabismus occurred rarely. Other symptoms on the part of the different organs are given in full. In almost all cases the affection was ushered in by a rigor of varying length and intensity, which often recurred in an intermittent form. But little light is thrown on the etiology of the disease or on its treatment. Of ninety-three persons attacked the greater number, twenty-six, were between the ages of ten and twenty years, and of these the largest number between ten and fifteen. The author concludes that it is a specific infectious disease, not allied, as some assert, to typhoid and malarial affections.

Russell refers ('New York Med. Journ.,' xv, 302) to the occurrence of seven cases of spinal meningitis, in New York, within three days; three proved fatal.

Stadthagen, "Ueber Meningitis Cerebrospinalis, mit besonderer Berücksichtigung der letzen Berliner Epidemie des Winters, 1870-71," 'Diss. inaug. Berlin.' Maier, "Ein Seltener Fall von Meningitis Cerebrospinalis" (female child, æt. 6 months), 'Jahrb. f. Kinderheilk.,' v, 109. Alix, "Epidemie de Méningite Cérébrospinale,"

'Gaz. des Hôp.,' 1871, 417. Clouston, "Case of Cerebrospinal Meningitis" (in insane patient, autopsy), 'Journ. Ment. Sci.,' xvii, 225. Dowse, "Cerebrospinal Meningitis with Myelitis of the Cord" (woman, æt. 60, autopsy), 'Lancet,' 1872, i, 756. Tempini, "Un caso sporadico e fulminante di Meningite Cerebrospinale" (girl, æt. 11 years, with autopsy), 'Gaz. Med. Ital. Lombard,' 1872, 237. Habershon, "Disease of the Aortic Valves, Ulceration of the Valves; Acute Cerebrospinal Meningitis; Ossified Aneurismal sac at the Commencement of the Aortic Valves" (man, æt. 45), 'Guy's Hosp. Rep.,' N. S., xvii, 440.

Intermittent Fever.

Boisseau ('Gaz. Hebd.,' 1871, 200) records a case of transitory aphasia accompanying an attack of intermittent fever. The patient, a soldier, æt. 21, had suffered from the latter affection in 1866, while in Cochin China. The attacks recurred every three or four days, while he was in Belgium, after the battle of Sedan, and again in 1871. At this latter period, without any paralysis of the face or limbs, the attacks were accompanied by an aphasia which returned at regular intervals. The same thing had happened during the former attacks of ague.

Bazin ('Gaz. des Hôp.,' 1871, 286) gives a case of intra-uterine ague. The mother was suffering from tertian ague at the time of her confinement, and gave birth to a female child during one of the attacks. Nearly a month later, and for some time afterwards, the child had regularly every night attacks of coldness and paleness, yawned, and stretched its limbs, and a little later became red and burning hot, its respiration increasing in frequency; it then fell into a sleepy condition, during which it refused the breast; towards morning the heat left it, and it again resought its natural food. At the same time there was great enlargement of the spleen and œdema of the feet, face, eyelids, &c. He calls attention to the latter, which he considers a great aid in the diagnosis of ague in young children (!).

Longhi, "Della Malaria e delle Febri Intermittente," 'Gaz. Med. Lomb.,' 1872, 253. Galt, "Description of an Epidemic Malarial Colic which prevailed at Iquitos, Peru, in the autumn of 1871," 'Amer. Jour. Med. Sci.,' lxiii (1872), 368. Senator, "Ueber die Beziehungen zwischen Febris Intermittens und Recurrens," 'Berl. Klin. Woch.,' 1871, 379 (abstracted under latter fever). Curschmann, "Bemerkungen über die Behandlung des Wechselfiebers mit Carbolsäure," 'Deut. Arch.,' ix. 120. Biebuyck, "Note pour servir à l'Histoire de la Fièvre Intermittente en Mexique," 'Rec. de Mém. de Méd. Milit.,' xxvi, 60. Donaud, "De l'iode contre la Fièvre Intermittente," 'Gaz. Hebd.,' 1871, 434. Pasta e Rotondi, "Sulla virtù Medicamentosa del Citrato di Chiniodina," 'Annal. Univ. di Med.,' vol. 218, p. 609. Roy, "On the Therapeutical Action of Quinine on Malaria," 'Lancet,' 1871, i, 245. Gee, "The Urinary Phosphates in Ague," 'St. Barth. Hosp. Rep.,' viii (1872), 32.

Yellow Fever.

Munro ('Edin. Journ.,' xvii, 201) gives some notes on cases of yellow fever, which occurred between September, 1868, and January, 1870, in the usually very healthy island of St. Kitt's. All the evidence he has been able to collect inclines him strongly to the correctness of the "infection theory," though he does not reject the idea that it can *also* originate *de novo*. He believes, indeed, that the first of the cases he gives probably arose in this way, the atmospheric and bad hygienic conditions which surrounded it acting as causes. The first case was that

of a boy, æt. 7, who, two weeks before he was attacked, had been brought to the town of Basseterre from Grenada, at which place, so far as the author could discover, there was no yellow fever at the time. Fresh cases occurred in the neighbourhood of the house in which this patient died. The disease spread gradually from house to house and from place to place round the whole island. One hundred and eight people in all were attacked, of whom forty-four, or 40·7 per cent., died. Europeans, and especially those just come out, seemed most susceptible; then the Portuguese, nearly all natives of Madeira. Munro thinks that a "fæcal cause" for the disease may be found in the fact that the greater part of the town of Basseterre had been destroyed by fire in July, 1867, which, by burning down the privies, left their pits open, the necessary atmospheric conditions for the production of the fever not occurring till fifteen months later. He gives an account of a number of the cases and tables of the rainfall, barometric pressure, &c.

Sullivan, in his "Notes on the Yellow Fever, as observed at Havana in 1870" ('Med. Times and Gaz.,' 1871, i, 304), gives a very full account of its different forms, its symptoms, and its treatment. He remarks that in fatal cases jaundice is as certain after death as albuminuria during life. He draws attention to the means of diagnosing between the true black vomit and deep-coloured bile; linen steeped in the former gives a *bistre très tranchée;* in bile, a green or deep yellow. As to the nature of yellow fever, he considers it a pestilential one, having two distinct phases—one of reaction against the infectious poison, constituting sometimes the entire malady, and very like an infectious fever; the other, of depression or adynamic ataxia, counterfeiting nervous hæmorrhagic putrid fevers.

Hiron (ib., 1871, ii, 124) gives a long and more or less confused account of the epidemic of yellow fever in the River Plate districts in 1870 and 1871. It had already shown itself at Ascension in the summer of 1869-70, and in April of the latter year had appeared at Buenos Ayres. As far as could be discovered it had been imported into both places from Rio Janeiro, but did not spread far at the time. During the next summer it broke out in both places and at Corrientes. Buenos Ayres has a population of about 180,000. Of these, 100,000 fled at the beginning of the outbreak; of those that remained three fourths sickened and one fourth died. There seems no doubt that the disease was imported from Brazil, most probably aided by insufficient quarantine arrangements. Both Monte Video and Rosario, at which places quarantine was carefully observed, were free from the disease. The writer discusses the effect of the atmospheric conditions. The Italian part of the population, who are the poorest, and inhabit the worst quarters of Buenos Ayres, suffered most, and the affection was especially fatal among children. The post-mortem appearances and the symptoms are similar to those already recorded, and, as far as treatment is concerned, the writer agrees with Sullivan.

Eulenberg ('Berl. Klin. Woch.,' 1871, 174) writes on the epidemic of yellow fever in Rio Janeiro during the years 1869 and 1870. The summers of these years and of 1868 had been marked by great dryness

and absence of storms, and the soil-water stood extraordinarily deep; at the same time the epidemic was preceded, as in former years, by an epidemic of Dengue, which Nägeli and others look upon only as an aborted form of yellow fever. As usually is the case, the poorest and filthiest inhabitants suffered most, the epidemic spreading rapidly among the suspected coal-ships in the harbour; 599 patients were treated in hospital between Feb. 4 and March 18, 1870, and of these 99 (17·8 per cent.) died.

The 'Pall Mall Gazette' gives (Feb. 2, 1872, 5 [765]) the following: —"In an interesting report, lately issued by the health officer of the port of Charleston, South Carolina, the cause of yellow fever in that city is traced to putrefying organic matter. It appears that the soil on which the city stands is sandy and porous, and consequently well calculated to conceal poisonous gases, and that the sewerage is altogether defective. Last year, when the epidemic raged more severely among the coloured residents than it had been known to do previously for thirty years, the health officer shows that during the five hot months, from May 1 to Sept. 25, only one vessel arrived in port having a case of sickness on board, and that case was not yellow fever. The disease, therefore, could not have been imported. Further than this the health officer states that the condition of the atmosphere last year was like that of 1850, when there was another terrible outbreak of yellow fever as it is possible to find in two different seasons. In both instances Charleston was exposed for weeks to intense heat, and this was followed by a deluge of rain."

Johnston, "Report on the Epidemic Fever at Trinidad, 1869," 'Army Med. Rep. for 1869, xi, 363. "Report on Outbreak of Yellow Fever at Mandeville, Jamaica," ib., 389. Ullersperger, "Das gelbe Fieber in Valencia," 'Deut. Klin.,' 1871, 117. "Yellow Fever in Buenos Ayres," 'New York Med. Journ.,' xiv. 111. Bailey, "The Nature and Treatment of Yellow Fever," ib., xv, 44. Anderson, "Yellow Fever as it occurred in Wilmington, North Carolina, from 1800 to 1872," ib. xvi, 225.

Cholera.

Botkin ('Berl. Klin. Woch.,' 1871, 389) gives very full observations, made with reference to the symptoms and treatment of cholera on twenty-three male cases in hospital in St. Petersburg. The observations were made during the March and April of 1871. Of the twenty-three, on admittance into hospital, the temperature was below normal in twelve, and of these four died; in seven it was high, and in the rest normal. After entering into the state of the various organs and secretions and the treatment (with large doses of quinine), he gives his opinion that the cholera process is not the result of a local effect of the cholera-poison, but the expression of an infection of all the fluids of the body. One of his assistants, Dr. Popoff, injected the fresh vomit of cholera patients into the veins of dogs, and obtained a condition resembling the clinical condition of cholera, together with characteristic changes in the intestinal canal. The disease, according to Botkin, may be fatal without any profuse diarrhœa, and it is inconsistent to refer the cyanosis, the dyspnœa, the cramps, &c., to the loss of fluid and thickening of the blood. He uses quinine on the principle of its employment in

similar infectious diseases, and looks upon it as a prophylactic as well. He holds that in the mode of its development and propagation, in its clinical and anatomical aspects, cholera approaches, on the one side, the typhoid, and on the other the malarial affections; that just as these two fevers show various modifications in different epidemics, so also types of cholera occur, which can by no means be summed up by the ordinary names of cholera, diarrhœa, and cholerine; that he and other physicians in St. Petersburg noticed, during the epidemic of the preceding winter, numerous cases of an affection which presented symptoms peculiar to the cholera process, such as diarrhœa, sickness, small pulse, sometimes profuse sweating, pain and enlargement of liver and spleen, scanty secretion of urine, which was sometimes albuminous, and during convalescence herpes labialis, epistaxis, catarrh of the nose, throat, and bronchi, tendency to diarrhœa, &c. This type was observed in persons of all classes and ages, attacking in many families several individuals; it was at first sporadic, but was propagated in an epidemic form a short time before the outbreak of the cholera. He has never noticed that these cases became cases of cholera, but all cholera patients admitted into hospital had suffered for several days with prodromal symptoms, which more or less corresponded with the affection described. He believes he is justified in concluding that this is an independent affection allied to the cholera process; that it is the result of the action of a cholera poison, probably modified by external influences; that this modified poison bears somewhat the same relation to the true cholera virus as that of bilious typhoid does to that of recurrent fever, or that of abortive typhoid to the true typhoid fever; and he inclines to the view that the cases noticed by previous writers of gastric and intermittent fevers prevailing during or after epidemics of cholera belong to this form of the affection, in which should be recognised a modification of the cholera infection, an abortive form of the disease. His treatment of these "abortive" cases consisted in the administration of pills containing carbolic acid and quinine.

Paterson ('Med. Times and Gaz.,' 1872, i, 473) has made experiments on dogs, rabbits, and mice, with the rice-water stools of cholera patients, in the condition of deep collapse. Some of the experiments were made with the fresh matter, others with the cholera matter in a state of fermentation. No result was obtained in any case.

Lawson (ib., 1871, ii, 15) gives some very interesting observations on outbreaks of cholera in ships at sea, which, as he has before laid down, have for their cause the "Pandemic waves" which "travel uniformly from south to north according to definite law."

Wittcke ('Zeitschr. f. Epidemiol.,' iii, 204) gives a sketch of the epidemic of cholera in 1866 at Erfurt, whither it was introduced from Berlin. It broke out on the 23rd July, and was extinguished by Nov. 15. It was the most extensive epidemic that ever broke out in that district, and though it attacked a less number of persons than the epidemic of 1850, the mortality was greater. In the latter year 3819 were attacked, of whom 1312 died; in 1866, 1539 died out of 2650 cases. Striking proofs were obtained of its contagion by individuals or infected objects. According to Wittcke, Pettenkoffer's views as to the

relation of certain conditions of subsoil water to cholera were not supported by this epidemic ,nor did the directions given by him as to the disinfection of latrines, &c., prove more efficacious. The affection visited several places which had been perfectly free, and spared others which had suffered, in former years.

Moore translates ('Brit. Med. Chir. Rev.,' xlviii, 462) a paper by Schleisner, on the cholera in Copenhagen in 1866. Thirty cases of cholerine, suspicious diarrhœa, and cholera remained on board ship in the roadstead, of whom two died; sixty-one, of whom six died, were admitted into the hospital. In the city itself only four cases occurred, of which the first died. This immunity of the city, to the port of which 2233 ships arrived between May and December from infected localities, was due to the stringent measures adopted. These the author gives at length—strict quarantine; daily inspection of the ships for the first three days of their stay in harbour; strict regulations as to lodging-houses and inns, as regarded the reception of seafarers, &c.; the formation of a cholera hospital in an isolated position near the harbour; disinfection of all latrines; special supervision of the city itself by the sanitary police; and of all institutions, orphan houses, schools, &c., by the medical officer of health; and the removal of the occupants of such houses as might be first attacked by cholera.

Thompson gives a report ('Army Med. Rep.' for 1869, xi, 392) on an epidemic of cholera at Thayetmyo, British Burmah, in 1869. A portion of the 76th regiment was stationed there from February, 1868, to April, 1869. At the end of the latter month cholera, which had not appeared before, broke out in a coolie village. In May, it attacked a barrack in which the married soldiers lived, and spread rapidly, till they were removed to a more elevated and easily isolated spot, when no further cases occurred.

Fauvel ('Bull. de l'Acad. de Med.,' xxxvi, 599), read before the Academy some notes on cholera, in which he sketches its march in Europe. In Russia, where it never entirely disappeared since its importation in 1865, it was still epidemic, at the end of 1869, in several provinces in the centre and the west. It gradually diminished, till it seemed to have disappeared about the middle of 1870. In July of that year it again broke out at Taganrog and Rostow, spread along the shores of the Black Sea by Kertch, Odessa, and Poli, from whence it was propagated inwards to the transcaucasian provinces. The rapid extension along the coast coincided as usual with the arrival of travellers from affected parts. It was by no means severe and ceased again at the end of September. In the early part of that month a few cases occurred in St. Petersburg, where it reappeared in February, 1871, and was regularly epidemic. In May it also broke out in Moscow and the neighbouring provinces; next month at Wilna, at Sulwalki, not far from Kœnigsberg, and at Riga; at Nijni-Nowgorod, and Kazan; and in the south again at Taganrog, where it raged with especial violence, 11,942 people being attacked between June 12 and July 22, of whom 4489 died (ib., 694).

At the end of July (1871) it appeared at Kœnigsberg (ib., 983); in August successively at Dantzig, Stettin, Berlin, on the 19th at Posen, and on the 29th at Frankfort-on-the-Oder, and almost at the same time at

Hamburg and Altona, on the Elbe. These places were the most westward limit, as Frankfort, &c., were the most southern, of the cholera in 1871. At Kœnigsberg 2635 were attacked, and 1204 died. In spite of rigorous quarantine measures, the disease extended also in the south-east. In September, 1871, fatal cases occurred in a village on the Bosphorus, and at the end of the month in Constantinople, where 112 died in six days. It also appeared at Galatz. In a further communication (loc. cit., 1872, series 2, i, 574), Fauvel resumes his sketch, with especial reference to the outbreak of cholera at Mecca and Medina (Feb., 1872).

Barnier ('Arch. de Med. Navale,' xvi, 190) publishes a note on an epidemic in September and November, 1870, in the island of Nossi-Bé, in lat. 15·5° south. It was brought by a negro from Madagascar, where cholera was present, on 15th September, to the village of Ambanourou. Next day four people who had been in contact with him, died; and the affection spread rapidly. The village, the position of which made it easy, was isolated by land and sea; but the quarantine arrangements were broken, and the disease was propagated to Ankarankel and to Hellville, but owing to the strict arrangements did not become general. It was most fatal among the Caffirs, 168 dying out of 204 attacked. Among 200 Indians there were but three cases and one death. Barnier thinks that the idea that this poison is propagated by the air is radically false; and that, however saturated with contagion the air may be in a town where cholera is raging, it entirely loses its deleterious action in a distance of less than a kilometer from the place.

Pellarin ('Gaz. Hebdom.,' 1871, 533) gives shortly his experience of an epidemic of cholera in Guadeloupe and other islands of the Antilles, far surpassing in violence any seen in Europe. Nothing was to be noticed as far as atmospheric or even the local hygienic conditions was observed. Nor was the epidemic preceded by any analogous or premonitory affections; and he concludes that the history of insular epidemics proves that they are directly and always preceded by the introduction into the island either of patients suffering from the disorder, or articles impregnated with the contagious principle. Mediate or miasmatic contagion is the only mode of propagation of cholera in islands.

Rolleston ('Lancet,' 1871, ii, 339) protests against the theory that water is the ordinary vehicle, and, so far, the sole cause of cholera.*

On the other hand, Dr. Renzy ("Water Theory of Cholera," 'Med. Times and Gaz.,' 1871, i, 411; 'Lancet,' 1871, ii, 449, 623; 'Brit. Med. Journ.,' 1871, ii, 626) finds fault with Rolleston, Cunningham, and v. Pettenkofer, and attempts to uphold his favourite theory.

Schlömann ('Berl. Klin. Woch.,' 1871, 431) found very great success in the cholera epidemic of 1866, in Texas, from the employment of quinine combined with opium. Reichard (ib., 408), in the epidemic at Riga in 1871, found chloral hydrate give good results. Rothe (ib., 348 from the employment of carbolic acid in the diarrhœa of infants and in sporadic cases of cholera, thinks it will be of great use in cases of the epidemic disease. Förster (ib. 446) advocates the

* The different abstracts given in this report sufficiently confirm this protest, which it would be well for others beside the writer of a "leading London political paper" to lay to heart.—A. B. S.

burning of straw in places occupied by cholera patients, the burning to be followed by free ventilation, and the ashes to be employed to disinfect the vessels used for the reception of the stools. He recommends the evacuation after a certain time of the rooms in which patients have been, especially if the peculiar smell of burning does not exist, and a fresh burning and ventilation to be carried out. He had followed out these measures in the war of 1866.

Pfeiffer, "Die Cholera in Thüringen und Sachsen während der dritten Cholera-Invasion, 1865-67," Jena. Zehnder, "Bericht über die Cholera-Epidemie des Jahres, 1867," Zurich. Marsicani, "Sur le Choléra de 1869 en Russie," 'Gaz. Med.,' 1871, 194. Cunningham, "Report on Cholera in the Bengal Presidency," 'Seventh Ann. Rep. of the Sanitary Commissioner with the Government of India, 1870,' Calcutta, 1871. Cornish, "Cholera in Southern India: a Record of the Progress of Cholera in 1870, &c.," Madras, 1871. Sing, "Hindu View of Cholera," London, 1871. Fitzgerald, "Epidemic Cholera," London, 1871. (For review of these four last books, see 'Edin. Med. Journ.,' xvii, 929.) "The Cholera Outbreak at Secunderabad," 'Lancet,' 1871, ii, 98. Christie, "On Cholera Epidemics in East Africa," ib., i, 113. Id., Additional Notes on the same, ib., 1872, i, 573. Carpenter, "The Causation of Cholera," ib., 1871, ii, 771. Sedgwick, "On the Initial Pathology of Cholera with reference to Treatment," ib., ii, 393. Id., "On some Physiological Errors connected with Cholera," ib., 507 (cf. Johnson on this paper, ib., 547, 806, and Sedgwick's answer, ib., 902). Id., "On Temporary Glycosuria as a sequel of Cholera," 'Med.-Chir. Trans.,' liv, 63. Carpenter, "Quasi Cholera," 'Lancet,' 1871, ii, 426. Lowndes, "On the Treatment of Cholera," ib., 319. Rickards, "Case of Cholerine difficult to distinguish from Asiatic Cholera," ib., 290. Cornish, "The Cholera at Secunderabad in May, 1871," 'Med. Times and Gaz.,' 1871, ii, 591. French, "On the probable Cause of the Post-mortem Muscular Contractions in Cholera, and on the Philosophical Treatment of that Disease," ib., i, 688. Chapman, "Cholera Poisons," ib., 1872, i, 355. Jenkins, "A Chapter in the History of Cholera," ib., 608. Radcliffe, "The Prospects of Cholera," ib., 499. Patterson, "Treatment of Cholera by Subcutaneous Injection of Morphia," ib., 95. Watson, "Lecture on the Diffusion, Pathology, and Treatment of Asiatic Cholera," 'Brit. Med. Journ.,' 1871, ii, 141. Murray, "Cholera, its Diffusion, Prophylaxis, Symptoms, and Treatment," ib., 175. Johnson, "The Pathology and Treatment of Cholera," ib., 197. Jones, "Suggestions for the Employment of Nitrite of Amyl in the Collapse and Cramps of Cholera," ib., 378. Foote, "Case of Sporadic Cholera, extreme Collapse, Recovery under Eliminative Treatment," ib., 352. Martin, "Intemperance and Cholera," ib., 198. Munro, "Suggestion as to the use of Calabar Bean in Cholera Asiatica," 'Edin. Journ.,' xvii, 327. Budd, "Cholera and Disinfection. Asiatic Cholera in Bristol in 1866," London. Peters, "On the Origin and Travels of Asiatic Cholera," 'New York Med. Journ.,' xiv, 113. Tholozan, "Origine nouvelle du Choléra Asiatique, ou Début et Développement en Europe d'une grande Épidémie Cholérique," Paris, 1871. Id., "Durée du Cholera Asiatique en Europe et en Amérique, ou persistance des causes productrices des Épidémies Cholériques hors de l'Inde," 'Gaz. Hebd.,' 1871, 671, &c. Grimaud, "Résultats des Observations faites sur les dernieres Épidémies Cholériques," 'Compt. Rend.,' lxii, 158. Foley, "Le Choléra chez les autres et chez nous; nouvelle étude Géographique et Biographique, Médicale, &c.," Paris. Netter, "Du Traitement de Choléra par l'Administration, coup sur coup, d'enormes quantités de boissons aqueuses" (20 litres et plus dans les 24 heures), 'Gaz. des Hop.,' 1872, 915. Sainmont, "Note sur la Nature et sur le Traitement du Choléra," ib., 1130. De Pietra, "Trattato Pratico sul Cholera," Palermo. Pacini, "Sull'ultimo Stadio di Colera Asiatico, o Studio di Morte apparente dei Colerosi," Florence, 1871. Schneider, "Cholera in Soerabaya auf Java," Berlin, 1871. Lewin, "Bericht über die Erkrankungen an der Asiat. Cholera zu Berlin in Jahre 1871," 'Deut. Klin.,' 1871, 411. Focke, "Die Cholera und die Desinfectionsmittel," ib., 329. Pfeiffer, "Untersuchungen über den Einfluss der Bodenwärme auf die Verbreitung und den Verlauf der Cholera," 'Zeitsch. f. Biol.,' vii, 263. Hallier, "Versuch über den Einfluss der Cholera-Reiswasserstühle auf den Reis," 'Zeitschr. f. Parasitenkunde,' ii, 65.

Weisbach, "Beschränkte Cholera-Erkrankungen in der Berliner Charité im Jahr 1871." 'Virch. Arch.,' lv, 249. V. Kaczowski, "Bericht über die Cholera-Epidemi des Jahres 1866, in Posen," 'Berl. Klin. Woch.,' 1872, 15. Nedsvetski, "Zur Mikro graphie der Cholera," 'Centralbl.,' 1872, 233.

Enteric (Typhoid) Fever.

Heschl ('Wien. Med. Woch.,' 1871, No. 34) is convinced that th capillaries and muscles of the intestinal canal are infiltrated in the same way as the follicles and the sub-mucous tissue, and to this cause h refers the deeper degenerative changes which lead to perforation He describes in full the microscopic changes found, both in the capil laries and the longitudinal layer of the intestines: in both the nucle are enlarged, and in different stages of proliferation.

Murchison ('Path. Soc. Trans.,' xxii, 144) describes the change found in the intestine of a man, æt. 24, whose bowels had been consti pated throughout, and who died of hæmorrhage on the twenty-seventh day of the enteric fever. The hæmorrhage did not seem to have pro ceeded from one ulcer in particular, but to have been due to a fungating condition of the morbid material in many of Peyer's patches nearest t the cæcum, corresponding to which were dark-red spongy excrescence firmly attached to the subjacent ulcerated surface.

Maclagan ('Edin. Journ.,' xvi, 865) writes a long paper on th intestinal lesion of enteric fever, and in an appendix gives notes o thirteen cases. He briefly summarises his facts as follows. The in testinal lesion of enteric fever is specific in character, and may termi nate in resolution or ulceration. When it goes on to ulceration ther are two sets of lesions, primary and secondary, the former an essentia part of the disease, the latter accidental, and the result of the inocula tion of healthy glands by discharges coming from the former. Th relative frequency of these two lesions varies in different cases. Th extent of the primary lesions bears a direct relation to the severity o the attack, while that of the secondary does not do so, as they are mor likely to predominate in cases in which the general symptoms are mil and the primary lesions few. One primary lesion is sufficient to pro duce, directly or indirectly, many secondary. The discharges do no necessarily inoculate every gland over which they pass; the longer the remain in contact with a gland, the more likely is it to suffer. Th higher up in the intestines the primary lesions are situated, the mor numerous, *cæteris paribus*, will be the secondary. Fatal abdomina symptoms are more often the result of secondary than of primar lesions. Relapses are caused by a reabsorption of the poison into th system, probably by one or more absorbent glands which escaped durin the primary attack. Constipation is to be regarded as a source o ultimate danger. No one suffering from enteric fever should go mor than two days without a stool.

Allbutt ('Brit. Med. Journ.,' 1871, i, 547) draws attention to case occurring in practice, in which the patient, without the existence o any organic disease, loses flesh till he becomes a living skeleton. H thinks this marasmus may be often traced to a prior attack of enteri fever. He gives six cases which bear more or less upon this view; an

believes that the innutrition consists in the lack of digestive powers over fats. In the absence of any pathological proof at present, he refers the cause to a permanent degeneration of the mesenteric glands.

Guéniot ('Gaz. des Hôp.,' 1871, 301) records a case of hæmatoma of the rectus abdominal muscle in a man of 22 recovering from typhoid fever.

Kraft-Ebing ('Deut. Arch.,' viii, 613) gives two cases of suppuration in muscles after typhoid fever. The first was that of a man, æt. 24, convalescent from typhoid, in whom a fluctuating tumour appeared, corresponding to the same rectus muscle. The writer believes that there was here a rupture of the degenerated muscle, followed by hæmorrhagic infiltration; that the latter set up inflammation going on to suppuration; and that had not incision been made through the skin, &c., the pus might easily have found its way into the peritoneal cavity. In the second case, a man, æt. 22, died of pneumonia on the forty-third day of a severe typhoid fever. At the autopsy the whole left psoas muscle, from an inch from its origin down to Poupart's ligament, was changed into a tumour, which on being opened gave exit to ill-smelling pus, mingled with blood, blood-clots, fibres and cell-tissue. The internal iliac and a portion of the transverse abdominal muscle were also of a yellowish-red colour, and contained partly fluid, partly clotted blood. The microscopical examination of all these muscles showed the fibres infiltrated with a cloudy, granular, highly refracting material, the striations partly destroyed, no amyloid degeneration, or rupture (Bruchspalten). The author concludes that suppuration may occur in typhoid fever, from hæmorrhage into muscles, and that this depends, as Zenker has shown, from antecedent degenerative changes in the fibres.

Clément ('Lyon Méd.,' viii, 649) records a case of typhoid fever in a man, æt. 22, followed by complete right facial paralysis, with paralysis of the orbicularis and loss of electrical contractility; paralysis of the sensory portion of the trigeminal, the glosso-pharyngeal, auditory, hypoglossal and olfactory nerves; and paralysis both of movement and sensation in the limbs. He refers the origin of the lesion to the medulla oblongata.

Gluge ('Bull. de l'Acad. Méd. Belg.,' v, 613) records the following as a rare termination of typhoid fever. A boy, æt. 6 years, convalescent from the disease, was attacked a month after its commencement with peritonitis, and very considerable purulent effusion, which made its way out by the umbilicus. The child recovered and the opening had closed a month later.

Latham ('Lancet,' 1871, ii, 81) concludes from his own experience (1) that *almost* invariably the disease (typhoid fever) proceeds from a special poison contained in the alvine excreta. (2) That this poison is *directly* introduced into the alimentary canal, either in the food, or, most generally, in the water drunk. (3) That it is not yet proved that the poison is contained in, or is disseminated by, the exhalations from drains, privies, &c., or that it can be absorbed into the system through breathing air contaminated with such exhalations. He describes an outbreak of typhoid fever at Harston, near Cambridge,

and suggests, (1) that every evacuation, as soon as passed, should be disinfected with carbolic acid. (2) That no surface-well water or pump-water, whether boiled or not, should be used in a district where there are any cases of typhoid fever, but that all drinking water should be obtained from some spring not liable to contagion. He points out the importance of not giving solid food till the temperature of the patient at 8 a.m. and 6 p.m. has remained, for two days at least, about the normal point, when we may be sure the ulcers have healed.

In a long "Inquiry into the causes of Typhoid Fever, as it occurs in Massachusetts" ('Second Annual Report of State Board of Health of Massachusetts,' 1871, p. 110), it is concluded that "it is exceedingly probable that a rich and fertile soil on which decompositionable substances are retained near the surface by any cause, whether a clay subsoil, or a ledge of rock, or a protracted drought, is a soil favorable to the production of this special disease."

N. Ratcliffe ('Lancet,' 1871, i, 760), inquiring into the outbreak of fever at New Barnet, found the sewage arrangements of the road, in which individuals were attacked, two of them fatally, to consist of four large cesspools for thirty or forty houses, or more. Two of these cesspools were open and two covered, the two open ones receiving the overflow from the latter, the fetid sewage ultimately finding its way by open trenches into the river Lea.

Mayo ('Med. Times and Gaz.,' 1871, ii, 492) describes an arrangement of the same kind in a village near Oxford, in which an epidemic of typhoid fever had broken out. The inhabitants seem to be most filthy in all their habits. At the back of a house where the worst cases occurred ran a ditch into which the people of the hamlet threw all their slops. The drinking water of this cottage was obtained from a pump opposite. A drain, made of rough stones, brought the slops from two other cottages, and passed close to this pump, the distance from the centre of the pump (which stood over its well) to the middle line of the drain being two feet six inches.

Lissauer ('Virch. Arch.,' liii, 266) gives his experience of the antipyretic (cold water) and the expectant treatment of typhoid, during the late campaign, at Metz, Compiègne, and Rouen. Under the former he lost 6 out of 97 (*i. e.* 6·18 per cent.), and under the latter 11 out of 46 (*i. e.* 23·91 per cent). At Rouen, from the unhealthy position of the hospital, 5 out of 13, treated on the expectant plan, died. The cases treated with cold water were severe throughout; those treated on the other plan were in great quantity lighter cases, so that the averages of mortality under the two can scarcely be compared. The bath was employed three times a day in those cases only in which the temperature rose above 41° C. (105·8° F.). In the majority of cases two baths in the day were sufficient, especially if combined with large doses of quinine. He gives the temperatures of six cases in full, together with a chart of each.

The cold-water treatment is also supported by Böhm and Michel, and by Binz and others, reference to whose papers will be found below.

Scholz ('Deut. Arch.,' ix, 176) gives the results of the cold-water treatment of typhoid in 125 cases (82 males and 43 women). Of these

five (four men and a woman) died. The patients were of all ages, between 10 and 50 years. The temperature of the bath was according to age, 50°—68° F. (10°—20° C.), and the period of immersion five to ten minutes, with the addition afterwards of cold applications. Drugs were given but rarely: castor oil in constipation, the tinct. ferri perchlor. in hæmorrhage from the intestines. The latter contra-indicates immersion in cold water, on account of the absolute rest necessary for the patient, but not the use of cold applications. The paper contains a full account of the sequelæ noticed, and the author adds that he has found the cold-water treatment most successful in the acute infectious diseases (scarlet fever, measles, diphtheria, erysipelas).

Popper ('Oestr. Zeitsch. f. Heilk.,' No. 1) obtains the same good results from this treatment. Of twenty cases of typhoid, one only died. The body was only half immersed in cold water for ten to fifteen minutes, the rest of the body sprinkled with it, and cold compresses used afterwards. The bath was employed twice a day.

Liebermeister, "Notiz betreffend die Epidemie in Andelfingen vom Jahre 1839," 'Deut. Arch.,' ix, 245. Virchow, "Kriegstyphus und Ruhr," 'Virch. Arch.,' lii, 1 (abstracted under typhus). Heine, "Ueber die Behandlung der Blattern und des Abdominal-typhus," ib., liv, 217. Weiser, "Zur Hydrotherapie des Ileotyphus," 'Wien. Med. Woch.,' 1871, No. 22. Böhm and Michel, "Beobachtungen über die Kaltwasser-behandlung des Abdominal-typhus im Kriege," 'Deut. Arch.,' viii, 596. Billiard, "Traitement abortif de la Fièvre Typhoïde par l'emploi du Sèigle Ergoté, 'Bull. de l'Acad de Méd. de Paris,' No. 35, p. 845. Morache, "De l'emploi de la Créasote à l'interieur dans le Traitement de la Fièvre Typhoide," 'Gaz. des Hôp.,' 1871, 394. Témoin, "Sur le Traitement de la Fièvre Typhoide," 'Bull. Gén. de Thérap.,' 82, 128. Leube, "Mittheilungen über die Typhus-Epidemie in der Festung Ulm im Winter 1870-71, und ihre Behandlung im dortigen Barackenspitale," 'Deut. Arch.,' viii, 583. Holzner, "Epidemische Erkrankungen in der Präparenden-Schule zu Freysing im Juli, 1870," 'Zeitschr. f. Biol.,' vii, 306. V. Pettenkofer, "Typhus und Cholera und Grundwasser im Zürich," ib., vii, 86. Wohlrab, "Einige Fälle von Verbreitung des Typhus Abdominalis durch das Wasser," 'Arch. d. Heilk., xii, 134. Pfeifer, "Statistik der Typhus-Abteilung aus dem Reserve-Lazareth Weimar," 'Berl. Klin. Woch.,' 1871, 105. Schönheyder, "Beitrag zu einer Charakteristik über den Typhus bei der Cernirungsarmee vor Paris," ib., 103. Strube, "Beitrag zur Nosologie der während der Belagerung von Paris bei der Maasarmee beobachteten Typhus Epidemie," ib., 355. Finckelnburg, "Ueber das Auftreten der Dysenterie und des Typhus unter der Belagerungsarmee vor Metz," ib., 369. Hjalteln, "Pythogenic Fever in Reykjavik during the Summer of 1871," 'Edin. Journ.,' xvii, 710. Fergus, "On the Sanitary Aspect of the Sewage Question, with Remarks on a little noticed cause of Typhoid Fever and other Zymotics,' ib. ib., 717. Taylor, "Notes of a Recent Epidemic of Typhoid Fever, and its Mode of Propagation," ib., xviii, 124. Galton, "Perforation of the Bowel in Typhoid Fever through a Diverticulum Ilei" (boy, æt. 12), 'Path. Soc. Trans.,' xxiii, 103. Maclagan, "The Bowel-Lesion in Typhoid Fever, its Nature and Treatment, 'Lancet,' 1872, i, 75. Id., "The Convalescence from Typhoid Fever," ib., 536. Rolleston, "On Typhoid or Enteric Fever in Indian Gaols," &c., ib., 1871, i, 7. De Renzy, "The Dry-earth System of Conservancy," ib., 287. Id., "On the Extinction of Typhoid Fever in the Millbank Prison by the disuse of the Thames Water," ib., 1872, i, 787. Binz, "The Antipyretic Treatment of Typhoid Fever at the Seat of War," ib., 1871, i, 147. Andrew, "A Case of Typhoid Fever complicated by Hæmaturia and Prostatic Abscess, leading to Extravasation of Urine" (man, æt. 35, autopsy), ib., ii, 712. Sutton, "Case of Typhoid Fever with High Temperature, the bath unsuccessful, large doses of quinine quickly followed by a fall of temperature" (woman, æt. 22), ib., 1872, i, 46. Hayden, "Typhoid Fever, Uræmia, Death," 'Brit. Med. Journ.,' 1871, i, 63. Nunn, "Suppuration of Knee-joint, Typhoid Fever, Pyæmia, Death," ib., 532.

Kemp. "Latent Typhoid Fever, Ulceration, Peritonitis, Death" (boy, æt. 16), ib., ii, 114. Hogg. "Enteric Fever" (Statistical), 'Med. Times and Gaz.,' 1871, ii, 752. Orton, "Typhoid Fever" (history of outbreak at Newcastle-under-Lyme, in December, 1871), ib., 1872, i, 459. Wunderlich, "Ueber Darmblutungen bei Typhus Abdominalis unter der Kaltwasserbehandlung," 'Arch. d. Heilk.,' xiii, 481.

Typhus.

Virchow ("Contagiosität dis Fleckfiebers;" 'Virch. Arch.,' liii, 134), from observations of the cases of typhus occurring in Berlin in 1871, is more convinced that it is introduced and propagated by direct contagion, and does not arise spontaneously. Of the 15 cases observed the exanthem appeared on the third day in two, and on the second day in two also after the first rigor: in several cases the gastric disturbance was so great as to suggest cholerine, especially as mucous "cholera-fungi" were found in the evacuations (!). He comes to no definite conclusion as to the period of incubation. In one case the facts seem to point to the possibility of infection in the last stage.

In another article ('Kriegstyphus und Ruhr.,' ib. lii, 1) the same author writes on the so-called "war typhus." He holds that it includes both typhus and typhoid. As diagnostic of typhus he calls attention to the early appearance of a roseolous or measly eruption, generally thickly and widely spread, especially over the face and flexor surfaces of the hands and feet. Petechiæ were almost absent in the majority of cases of typhus, and frequent in those of typhoid. In the latter the eruption was scanty and limited to the upper part of the abdomen and the lower part of the thorax, and only exceptionally general. In relapsing fever Virchow has met sometimes with hæmorrhagic petechiæ, but never a true exanthem. He asserts that the diarrhœa of typhoid is not dependent upon follicular ulceration, but upon the concurrent catarrh of the intestine; that stress should be laid, not upon the ulcer but the so-called medullary infiltration of the follicle, inasmuch has no ulceration need occur in some cases, and the so-called typhoid scab represents only a cheesy metamorphosis of the infiltrated elements, followed by thickening and loosening, and in this way a secondary ulcer of the mucous membrane. He draws attention to the fact that both in the American and the Franco-Germanic war true typhus was extremely rare, while typhoid showed itself in the later stages only of the miseries produced, and then gradually increased in extent and severity.

Lyons ('Lancet,' 1871, i, 708, 743) opposes the view of Rolleston, stated in a paper on "Typhoid or Enteric Fever in Indian Gaols" (ib., i, 7), and holds that typhus does prevail in India, and the epidemic of fever in Rawul Pindee gaols in 1869 (as also that in 1867), was typhus and not enteric or remittent fever. Chuckerbutty ('Ind. Ann. of Med. Sci.,' 1867, No. 21, p. 107, and 1864, No. 18, p. 122); recorded 32 cases of the disease. Other medical officers have seen typhus in the villages and elsewhere on the north-west frontier. Between January and May of 1869, 563 cases of typhoid occurred at Rawul Pindee, of which 84 were fatal. He holds that there can be no doubt of its contagiousness, and that typhus does and must occur under the conditions that will generate it in Europe or other temperate regions.

Campbell (ib., i, 408) gives a case, with autopsy, in a man æt. 30,

which he prefers to look upon as one of acute petechial typhus rather than of cerebro-spinal meningitis.

Relapsing Fever.

Tennent ('Glasgow Med. Journ.,' n. s., iii, 355) gives at some length an analysis of 352 cases of relapsing fever admitted into the Glasgow Fever Hospital between March 16 and Oct. 20, 1870. Six of these cases (1·7 per cent.) died; one, a man, æt. 45, became affected with paraplegia; a child, æt. 9 months, had severe convulsions; the other four died from syncope, the typical form of death in this affection. In three of these four cases, however, there was already existing a chronic disease (mitral obstruction; granular kidneys; bronchitis). Experience seems to show that relapsing fever very rarely proves fatal to healthy persons. The post-mortem examination of one of these three cases showed the presence in the spleen, which weighed 9½ oz., of three fluctuating tumours containing sanious fluid, and disorganisation of the spleen tissue.

Charteris (ib., 347) draws attention to "Post-febrile Ophthalmia" as a result of some cases of relapsing fever. It seems to have been first observed in Dublin in 1826, and in Glasgow in 1843 and 1844. The ophthalmoscopic examination of one case out of 20 showed the vitreous somewhat turbid, with black flocculi floating in it. The optic disc was indistinct, the retinal vessels congested, and the retina of a dull greyish tint. The pathology of the affection is obscure. Notes of these cases are given.

Robinson ('Lancet,' 1871, i, 644) gives an account of the outbreak of relapsing fever, at Leeds, in 1870. The first case seems to have occurred on March 31. Out of 361 cases coming under notice, there had been in 219 previous communication with infected persons. Privation due to the dissolute habits of the patients themselves or their parents, existed in 261 instances. Typhus was said to have attacked the family of the first patient simultaneously with the relapsing fever, and typhoid was epidemic throughout the period during which relapsing fever prevailed. The mortality from the three diseases in Leeds during 1870 was as follows: From relapsing fever (July—October), 13; from typhus, 131, the highest numbers being from May to October; from enteric fever, 182, the highest between July and November.

After drawing attention to the fact that former writers had remarked on the relations between intermittent and relapsing fever, Senator ('Berl. Klin. Woch.,' 1871, 379) gives his own experience of an epidemic in Berlin in 1870, which beside numerous cases of intermittent and recurrent fever, presented also some case of a character between the two. The patients seemed to be affected at first with true recurrent fever, which later on, and not only during the course of convalescence, yielded to one of a regular intermittent type. He gives six cases, and concludes that (1) intermittent fever supervenes in the course of a recurrent fever, at any rate, after the first attack; (2) it may appear during convalescence from the latter; (3) and that it is sometimes observed at the end of epidemics of recurrent fever, in dis-

tricts which were formerly free from it. And these facts lead him to believe that recurrent fever sets up a special liability to malarial poisoning. At the same time there is no relationship between the two affections; on the contrary, the fact that one infectious malady is no safeguard against another, proves that the two are perfectly distinct.

Relapsing fever again made its appearance in London, in November, 1872 ('Lancet,' 1872, ii, 895), attacking eight cases, all in the same family—three brothers aged 21, 19, and 3, the mother aged 40, and four sisters aged 16, 12, 7, and 5.

Insolatio (*Sunstroke*).

Thin ('Edin. Journ.,' xvi, 780) describes a number of cases of sunstroke met with in Shanghai in 1866, at a time when the thermometer registered 96° Fahr. in the shade. He thinks the attack is not to be attributed to great heat alone, but to the glare of the sun, and probably to an atmosphere charged with electricity. All the cases could be directly traced to exposure to the sun's rays falling on the head or the nape of the neck. The symptoms varied extremely: in the worst case complete coma was followed by speedy death; in others the coma lasted only a few hours, and was succeeded by complete recovery; in other cases a temporary paraplegia was a common sequela. Sometimes the attack could scarcely be distinguished from the commencement of a continued fever. He thinks that the affection is due to paralysis of the vasomotor nerves of the head, and in some cases of the spinal cord as well.

Macdonald ('Lancet,' 1871, ii, 289) gives two cases of sunstroke in men aged 63 and 34, the first one fatal. His remarks on the cases support Thin's views as to the causation of the affection, both attacks having occurred between 6 and 7 p.m., not at the hottest part of the day, but at a time when the air appeared dry, rarefied, and full of electricity.

Clapham (ib., 1872, i, 464) publishes the "particulars of a case of sunstroke recorded by the patient" (the writer).

The Acute Exanthemata.

Hofmann ('Zeitschr. f. Parasitenkunde,' iii, 105), in a paper on the rational treatment of the acute exanthems, especially measles and scarlet fever, after stating that it would consist in the removal of the causes of these diseases, the contagious nature of which, as Hallier has clearly shown, consists in the presence of true fungi, considers that the latter must be rendered harmless by the administration of remedies capable of killing them, or that they must be eliminated from the body as soon as possible. The former plan—that employed by Binz in typhus (typhoid?)—is impossible in scarlet fever and measles. Hofmann, therefore, employs the second method, and following Steinfacher, envelopes the patient in sheets wrung out of cold water, and surrounded by a woollen cover or dry sheet. The entire nervous system is in this way powerfully excited, heat withdrawn from the body, and when the temperatures of the body and cloth are equalised, a more or less profuse sweating occurs as a result of the hyperæmia of the skin. On this

increased excretion Steinfacher laid great stress, contending that it eliminated the special poison. To prove the latter position, Hofmann sent the sweat of a child affected with measles, and treated in this way, to Hallier, who reported the abundant presence in it of micrococcus. Hofmann has used this plan in numerous cases of scarlet fever and measles, even where the patients were comatose. He found that not only were the febrile symptoms rapidly diminished, but that the convalescence of the patient was quicker than under other treatment. His own method is as follows:—In slight cases, where the temperature *in ano* does not exceed 40° C., and when the brain is clear, he envelopes the patient, from the axilla to the hips, in the wet cloth, which is kept on for one or two hours; fresh cloths are applied till the temperature falls to 38° or 38·5° C., which generally occurs in from 2 to 4 days. He then orders a warm bath daily to promote desquamation, and the convalescence is complete in about eight days. In severer cases, when the temperature is over 48° C., and the patient comatose, he recommends the whole body to be enveloped for fifteen or thirty minutes; the cloths to be renewed after one or two hours. Later on the cloths are left on for one or two hours, twice or three times daily. After removing the cloths the whole body is sponged with cold water, or if the comatose symptoms are well marked, the patient is put into a bath of lukewarm water, and cold water poured over him till slight shivering is produced; and he is then placed in bed. The whole process is repeated whenever the temperature rises. Careful observation of individual cases can alone determine the temperature of the wet cloths, the frequency with which they should be applied, and other minor points.

Ballot ('Med. Times and Gaz.,' 1871, 510) gives some tables showing the number of deaths in Rotterdam from smallpox, scarlet fever and measles, from 1778 to 1811, and from 1815 to 1870. He finds during that period that

1. Epidemics of smallpox were slightly diminishing.
2. Those of scarlatina also diminished and were almost disappearing from the table.
3. Those of measles were always increasing.

Fleischmann ('Jahrb. f. Kinderheilk,' iv, 174) gives statistics of the mortality of scarlet fever. As combinations of two exanthems he found scarlet fever and vaccinia; scarlet fever and smallpox; scarlet fever and varicella; scarlet fever and measles. He considers the incubation of measles to be three days. The same writer (ib., 166) gives an account of an epidemic in the children's hospital at Vienna, of scarlet fever occurring during variola. Five children between the ages of three and a half and eleven years, one in the pustular stage of smallpox, the other in that of decrustation, were found to have a recurrence of high temperature (105·8° F,), which remained high from two to four days, and in the favourable cases fell. With this were pains in the neck, swelling of the tonsils and mouth. In one case the tongue was very injected and red. Soon after appeared an eruption like that of scarlet fever, either diffused over the whole body or limited to certain parts, as the breast and abdomen. In one case which recovered it was bluish red. Hæmorrhagic rings surrounded the still present pustules

of smallpox. The disappearance of the eruption was followed by a lamellar scaling; in the hæmorrhagic case the scales were an inch square. No sequelæ were observed. Two of the children died, one of very acute nephritis, while the eruption still existed, the other, a weak child of three and a half years, from febrile exhaustion.

Auchenthaler (ib., 220) gives a case of coincidence of measles and smallpox in a boy of thirteen.

Brunton ('Glasg. Med. Journ.,' iv, 27) records the following cases of combined eruptive disease; measles and smallpox in a pregnant woman of twenty-nine; scarlet fever and smallpox in a woman of forty-one, followed by death; scarlet fever and varicella in a patient of four years.

Sansom, "Case of probable coexistence of Scarlatina and Variola" (female, æt. 31, with chart of temperature), 'Brit. Med. Journ.,' 1871, i, 395. Musket, "Concurrence of Scarlatina and Varicella" (child, æt. 3 years), ib., 1872, i, 71.

Scarlet Fever.

Carpenter ('Lancet,' 1871, i, 110) holds that scarlet fever may and often does arise *de novo;* that it results from incipiént decomposition of the blood of vertebrate animals, either healthy or diseased, under the influence of certain conditions of temperature, magnetic state and moisture; that the poison is probably more virulent when produced from diseased material; and that some of the granules contained in blood undergo a certain corpuscular degeneration, and are the exciting agents in the production of the fever, by altering the character of the natural zymosis which is said to be always proceeding within the body. He attempts to support this theory by the histories of various outbreaks of scarlet fever in localities, houses, schools, &c., in the neighbourhood of places where slaughterhouse refuse was stored or used for manure. He believes that the disease would be shorn of its fatal tendency if blood were kept out of the sewers, &c., in fact, if all sanitary regulations were enforced. The paper contains an analysis of the prevalence of scarlet fever in Croydon during the last twenty-two years.*

Huber ('Deut. Arch.,' viii, 422) observed during an epidemic of scarlet fever in 1869 a hæmatoma in the neck of a child, æt. 6. It appeared as an oval, indistinctly fluctuating tumour, of the size of a hen's egg, in the left cervical region, corresponding to the course of the glands. It had presented itself ten days after the commencement of the scarlet fever, and had become rapidly larger during the last two days under the use of poultices. He looked upon it as an abscess, opened it, and evacuated about a handful of pretty firm clot, the removal of which was followed by a strong arterial blood stream; the case ended fatally. He refers to another case of the same kind, which had a more fortunate result. He thinks that a hæmatoma may be diagnosed from an abscess by the rapid increase of the former in a relatively short time, and by the comparatively greater hardness and indistinct fluctuation of the tumour.

* There is an odd coincidence between the letters used in this paper and those employed in Pettenkofer's *résumé* of his writings on cholera ('Zeitschr. f. Biol.,' Bd. v, 295), A. B. S.

J. Harley ('Med.-Chir. Trans.,' lv (1872), 103; 'Brit. Med. Journ.,' 1871, ii, 740) writes on the morbid anatomy of scarlatina and the relation between enteric and scarlet fevers. He gives notes of twenty-eight cases, the majority of which died on days ranging consecutively from the third to the fifteenth day, and the remainder on the 17th, 20th, 29th, 33rd, 41st, and 69th days. More or less albuminoid or fatty degeneration of the kidneys existed in six cases, and in these death occurred on the 15th, 17th, 20th, 29th, 41st, and 69th days respectively. In the rest these organs were healthy. The pathological changes common, with a few exceptions (depending on the time of the disease), to all, were—1. The formation of fibrinous clots in the heart and great vessels during a pyrexial state, at any period of the disease—the commonest cause of death during the early stage of scarlet fever. 2. Marked derangement of the hepatic function as shown by the deterioration of the bile. 3. General inflammation of the lymphatic system of glands (ordinary lymphatic glands, tonsils, and solitary glands of the tongue, spleen, mesenteric, solitary, &c.). From these pathological conditions he thinks that "*febris lymphatica is the appropriate scientific definition of scarlatina*," and he asserts that from this view one general conclusion as to the connection of scarlet fever and enteric fever is inevitable, viz. that the pathological changes accompanying an attack of scarlet fever include all those of the first stage of enteric fever, and are so far identical with them. Whence it follows that the transition from the former disease to the latter is nothing more than a natural pathological sequence, readily determined by any cause which may increase the intestinal irritation. The writer gives six cases of the coexistence of enteric and scarlet fevers, and proposes the term "abdominal scarlatina," already suggested to his own mind in writing the article on "Enteric Fever," in Reynolds' 'System of Medicine,' "as the appropriate definition of a disease which every intelligent practitioner will sooner or later meet with." (The report of the discussion on this paper will be found in the 'Brit. Med. Journ.' as above.)

Kelly and Nowlan ('Brit. Med. Journ.,' 1871, i, 342) record a case of severe scarlet fever in a girl, æt. 3 years, in whom an abscess was formed under the angle of the right jaw, extending down the neck and spreading over the clavicle. This opened spontaneously, and the whole clavicle came away, necrosed only at the acromial end. The patient recovered with unimpaired movement of the arm (!). ('Path. Soc..' Dublin).

Meynet ('Lyon. Med.,' viii, 124) records the occurrence of scarlet fever in a child only fifteen days old.

Marchioli, "Sopra di una Epidemia di Scarlattina," 'Gaz. Med. Lombard,' 1872, 109. Barclay, "Observations on Scarlet Fever, especially with reference to its epidemic character," 'St. George's Hosp. Rep.,' v, 167. Copeman, "On Scarlet Fever," ib., 55. Chapple, "Scarlet Fever in India," 'Lancet,' 1871, ii, 188. Crocker, "Iron in Scarlatina," 'Brit. Med. Journ.,' 1871, ii, 255. Pyle, "On the Contagion of Scarlatina and Smallpox," ib., 34. Aldis, "Scarlet Fever for Ten Years (1860—1870) in the Parish of St. George," London. Hutchinson, "Case of Renal Retinitis, with peculiar History as to Scarlet Fever," 'Lancet,' 1871, i, 479. Guéneau de Mussy, "Sur quelques formes graves de Scarlatina" (three cases), 'Gaz. des Hôp.,' 1871, 305. Langier, "Note sur la Rechute dans la Fièvre Scarlatine," 'Gaz. Hebd.,' 1871, 545.

Measles (Morbilli) and Rötheln (Rubeola).

Foss (' Edin. Journ.,' xvii, 981) gives a case of rötheln occurring in a man, aged 27. He defines the affection as "scarlet fever combined with catarrh, the catarrh being coexistent and coetaneous with the entrance of the scarlet fever virus into the body of the patient, the symptoms of the catarrh at once showing themselves and aggravating what is usually the period of incubation in scarlet fever." His reasons are founded on the similarity of the rash and the period of incubation (in rötheln, 4 days; in scarlet fever, 3 days, with an invasion period of one day).

Dunlop ('Lancet,' 1871, ii, 464) gives an account of an epidemic of rötheln occurring during the summer months of 1871 at St. Helier's, differing in no particulars from the affection as generally described.

Fleischmann ("Zur Röthelnfrage," 'Wien. Med. Woch.,' 1871, No. 30), describes the symptoms given by various writers as characteristic of rötheln. He thinks that many of the so-called transitional or mixed forms may be explained by the simultaneous course of two acute exanthems (scarlet fever and measles) in the same patient. From his own observations he looks upon Thomas's "large spotted" type of rötheln as an urticaria (erythema urticatum); the "small spotted" type he considers to be a specific affection, in which he seems to lay stress on the absence of the eruption from the face, the absence of peeling and the rapid fall of temperature.

Jaccoud, "De quelques Complications et Suites de la Rougeole," 'Gaz. des Hôp.,' 1871, 73. Vézien, "Rapport sur un Epidémic de Rougeole qui à regné pendant les mois de Février, Mars, Avril, et Mai à Dunkerque," 'Réc. de Mém. de Méd. Milit.,' xxvii p. 300.

Variola and Varicella.

It is impossible to do more than pick out a few from the very numerous papers published on variola during the two years past; the bibliography of the affection might be prolonged indefinitely from both French and English papers.*

Clemens ('Deut. Klin.,' 1871, 281) describes the case of a girl aged 21, in whom the eruption was extremely thick on the left half of the body, and only small on the right half, especially the right face. On the third day of the eruption red spots appeared on the right face and arm, on the fifth day these had become large vesicles of pemphigus. One only was visible on the right leg. These vesicles did not originate in aborted smallpox pustules; they were smooth, filled with yellowish serum, and healed without leaving a scar.

Simon ('Arch. f. Derm.,' iii. 242), supplementing his former account of the prodromal exanthem of smallpox (see last 'Report,' p. 77), gives several cases in which it was present. From these it is evident that it sometimes appears as the very earliest symptom, so that it is possible to diagnose the coming affection in a patient who exhibits little or no fever, and few or no subjective pains. The first symptom was a sensation of heat or itching of the abdomen. He refers the characteristic seat of this eruption to the axilla, and the inner and front part of the upper

* Capt. Butler gives a good report ("The Great Lone Land," London, 1872, App., p. 317) of the epidemics of small-pox among the Indians of the Missouri and Saskatchewan, especially during the years 1869-70.—A. B. S.

arm (the triangle of the upper arm). He answers generally in the affirmative the question whether this eruption is entirely pathognomonic of a coming variola; but he gives two cases in which, though it was present, the latter affection did not occur, and these he looks upon as cases of variola sine variolis. As to its nature, he places the exanthem in the same category as other vasomotor neuroses of the prodromal stage.

Gubler and Laborde ('Gaz. des. Hôp.,' 1871, 529) describe some of the nervine symptoms of variola. Frequently there was paralysis of motion and sensation in the lower extremities; paralysis of the bladder at the commencement and end of the affection, sometimes with cystalgia. In two cases there was aphasia in a young woman at the beginning of a slight attack, and in a soldier on the second day of the eruption. Both cases recovered, in both the movements of the tongue were unaffected, the intelligence was perfect, and the patients referred to the throat, which was not abnormally affected, as the cause of the aphasia.

Cartaz ('Lyon Méd.,' viii, 200) gives the results of an examination of the brain in 106 cases of smallpox, of which 49 were varioloid, and 13 hæmorrhagic. Of the other 44 albumen was present in one out of 12 men, and in six out of 32 women. It was present in all the hæmorrhagic cases. He holds that the albuminuria occurs in the convalescing stage of smallpox, and in the majority of cases lasts only a few days.

Rommelaere ('Bull. de l'Acad. de Méd. de Belg.,' v. 214) writes on the relation between variola and varicella. According to him the poison of variola exhibits itself in three different clinical types—variola, varioloid, and varicella; persons exposed to the contagion of varicella may take variola; and he advises that on an outbreak of varicella recourse should be had to the precautions employed against variola (re-vaccination, isolation, &c.). He enters into the pathological changes found in smallpox. In the cases examined by him there were pustules on the respiratory tract, the vocal cords, near the pylorus, and in the large intestine; enlargement of the solitary glands, spleen and mesenteric glands, and Peyer's patches; extravasation in the liver, kidneys, ovaries, bladder and pericardium, &c.; fatty degeneration of the liver and of the heart muscle.

Vulpian ('Bull. de l'Acad. de Méd.,' xxxvi, 912) discusses the mode of formation and structure of the pustules in smallpox.

Weigert ('Centralbl.,' 1871, 108) has found bacteria in the skin of several patients suffering from smallpox.

Wyss ('Arch. f. Derm.,' iii, 529) has studied fully the anatomy of the extravasations in hæmorrhagic smallpox, and purpura variolosa (hæmorrhagic smallpox without pustules). The hair and sweat glands seem to be unaffected in both diseases. In the early stages of smallpox he finds that the papules are formed not only by distension of the cells of the epidermis, but also by œdema of the papillæ.

According to Huchard (Arch. Gén. de Méd.,' xvii, 348), death in smallpox is due either to septicæmia or asphyxia. In the latter case the pustules may be found extending from the pharynx and larynx, throughout the respiratory tract, as far as the finest bronchi.

Revillout ('Gaz. des Hôp.,' 1871, 274) prevents the occurrence of

smallpox scars by opening the pustules with a needle dipped in nitrate of silver. He gives the case of a lady on whose face he opened all the pustules but two; cicatrices were left by these two only.

Fox, "The Mortality from Smallpox in regard to Sex and Age," 'Med. Times and Gaz.,' 1871, i, 538. Breganze, "Il Vajuolo Epidemico nel 1870—1871 in Milano," 'Gaz. Med. Ital. Lomb.,' 1871, 221, 1872, 133. Dell'Acqua, "Cenni sul Vajuolo e sulla Vaccinazione in Milano," ib., 25. Poppelauer, "Reminiscenzen aus den hiesigen Städtischen Pockenheil-Anstalten," 'Berl. Klin. Woch.,' 1871, 276. Paul, "La Variole considérée suivant les Sexes, les Ages, et les Saisons," 'Union Med.,' xi, 229. Grieve, "An Analysis of 800 Cases of Smallpox," 'Lancet,' 1871, i, 371. Yarrow, "Report of Cases of Smallpox admitted into St. Luke's Workhouse," ib., i, 606. Adams, "An instance of the Introduction and Propagation of Smallpox in a Community, and its Eradication by Stringent Sanitary Measures," 'Med. Times and Gaz.,' 1871, i, 125. Jones, "On the Recent Outbreak of Smallpox at St. George's Hospital," 'St. George's Hosp. Rep.,' xiv, 229. Brouardel, "Des conditions de Contagion et de Propagation de la Variole," 'Union Med.,' xi, 240. Andhoui, "Réflexions sur la Nature des Varioles observés aux Ambulances de Grenelles pendant le Siége de Paris," 'Gaz. Hebd.,' 1871, 180. Giustiniano, "L'Epidemia Variuolosa del 1871 in Carpi di Modena," 'Ann. Univ. di Med.,' vol. 218, p. 137. Hjaltelin, "Smallpox Imported into Iceland by French Fishing-vessels, stamped out by Quarantine and Sulphurous Fumigations," 'Brit. Med. Journ.,' 1871, ii, 519, Grieve, "Case of Hæmorrhagic Smallpox, with remarks," ib., 465. Gaskoin, "Antiseptic Treatment of Smallpox," ib., 1872, i, 4. Bäumler, "The Use of Baths in Smallpox," ib., ib., 45. Barlow, "On the Exclusion of Light in the Treatment of Smallpox," 'Lancet,' 1871, ii, 9. Collie, "Lecture on Smallpox," ib., 423. Jones, "Propagation of Smallpox," ib., 28. Gayton, "Hæmorrhagic Smallpox associated with Tetanus" (boy, æt. 17, autopsy), ib., 1872, i, 187. Cheves, "Hæmorrhagic Variola" (two cases, one autopsy), ib., 101. Ducat, "A Case of Malignant Smallpox," ib., 791. Aikman, "A Suggestion as to the Causes and Treatment of the Hæmorrhagic Type of Smallpox," 'Glasg. Med. Journ.,' iv, 52. Wohlrab, "Ein Fall von Varioloiden mit partieller Encephalitis im Gefolge," 'Arch. d. Heilk.,' xiii, 512. Geissler, "Einige Bemerkungen über Pocken und Vaccination," ib., 545. Schwenniger, "Kurze Notiz über die Wirkung des Chinins in dem Prodromalstadium der Variola," ib., 577. Briquet, "Sur la Variole," 'Bull. de l'Acad. de Méd.,' xxxvi, 858. Guéneau de Mussy, "Leçons Cliniques sur la Variole," 'Gaz. des Hôp.,' 1871, 37. Desnos et Huchard, "Des Complications Cardiaques dans la Variole, et notamment de la Myocardite Variéleuse," 'L'Union Méd.,' xi, 145 (and cf. 'Bull.Gén. de Thérap.,' T. 80, 385.) Lavisé, "Variole, Développement de Vésico-pustules dans le Pharynx, le Larynx, et les Bronches, Mort, Necropsie," 'Press. Med. Belge.,' 1871, 101. Netter, "Les Ferments Variolique et Vaccinale," 'Gaz. des Hôp.,' 1871, 569. Divet, "De l'Action Combinée de l'Alcool et de l'Opium dans le Traitement de la Variole Hémorrhagique," ib., 505. Heine "Ueber die Behandlung der Blattern und Abdominal Typhus," 'Virch. Arch.,' liv, 195. Eisenschitz, "Die Variola-Varicellenfrage," 'Jahrb. f. Kinderheilk.,' iv, 205. Fleischmann, "Ueber Varicella und Varicellen-Impfungen," Arch. f. Derm.,' iii, 497.

Syphilis.

Lostorfer* ("Ueber die Möglichkeit der Diagnose der Syphilis mittelst der Mikroskopischen Blutuntersuchung," 'Wien. Med. Jahrb.,' 1872, 96, and included under a paper by other writers, 'Arch. f. Derm. u. Syph.,' iv, 115) describes certain corpuscles to be found in the blood of syphilitic patients, and not in others. He thinks that their development is materially affected by temperature, and gives thirteen cases in which the corpuscles were present in all stages of the affection. He purposely says nothing definite as to their origin, or as to their being

* The 'Lancet,' 1872, i. 868, has a summary of Lostorfer's work.

infecting organisms. The two papers contain discussions in which Wedl, Stricker, &c., took part. The latter adds a note, in which he says that, on sending certain test-specimens to Lostorfer, the presence or absence of syphilis was pretty generally diagnosed. Wedl, who elsewhere ('Allg. Wien. Med. Zeit.,' 1872, 46) makes fun of the whole subject, declares that he has for some time found the said corpuscles in healthy as well as in syphilitic blood, and looks upon them as fat-cells. Vajda ("Lostorfer 'sche Syphiliskörperchen," 'Wien. Med. Woch.,' 1872, s. 172) improved on Lostorfer's method by keeping the blood continuously in a moist chamber. His observations were made on the blood of thirty-five patients. He describes the corpuscles at length, and concludes that they occur in syphilitic, leuchæmic, and carcinomatous blood more frequently than in healthy; that they are sometimes absent in syphilitic blood; that they are made up of an albuminoid (s. 200), probably a compound of phloretic acid,* with some combination of an amide, and that they are neither vegetable organisms nor fat-cells. Biesiadecki ("Ueber die Lostorfer 'schen Körperchen," ib., s. 172) comes to almost the same conclusions, and says that his colleague Stopczanski looked upon Lostorfer's corpuscles as granules of paraglobulin.

Owen Rees ('Guy's Hosp. Rep.,' 1872, 250) considers that the following symptoms especially aid the diagnosis in cases of cerebral disease having a syphilitic origin. (1) The paralytic seizure is generally the immediate result of some violent exertion, or of some long-continued muscular effort carried on to fatigue, and the collapse is often so great as to threaten immediate dissolution. (2) The hemiplegic or paraplegic symptoms are very irregular in character; the right arm and leg may be paralysed, the latter scarcely affected, while the left leg has lost motor power; or there may be hemiplegia of one side and anæsthesia of the other; or loss of sensation may affect only one limb, generally the arm. (3) Pain in the head and tenderness of scalp are scarcely ever wanting. (4) Aphonia has been observed in many cases in the early stage. He believes strongly that mercurial treatment is essential to the removal of the gummous deposits, and gives three cases —one with autopsy—in illustration of his view, which he states as follows:—Syphilitic deposits may, like various forms of malignant disease, be present in the brain-substance, without producing symptoms, or only slightly incommoding the patient. An exciting cause may intervene and induce inflammation, which results in deposits made up of the ordinary components of the blood. These are easily absorbed by the iodide of potassium; the symptoms disappear and the patient is considered perfectly cured. But the original syphilitic deposit still remains unabsorbed, and a recurrence is imminent, unless recourse be had to mercurial treatment, in order to effect the removal of the gummous mass.

Oser ('Arch. f. Derm. und Syph.,' iii, 27) describes three cases of extensive syphilitic ulceration of the small intestine. The first was

* Phloretic acid is the product of Phloritzin, a substance which occurs in the bark of the apple and other fruit trees, the composition of which is given by Strecker as $C_{42}H_{24}O_{20} + 4Aq$.—A. B. S.

that of a man, æt. 51, who about six months before death became greatly emaciated. He presented psoriasis palmaris, plaques muqueuses, and glandular changes, but his digestion was pretty good. He died suddenly, and the autopsy showed a greyish-red infiltration of all the intestinal layers, extending from the lower part of the jejunum to the cæcal valve. In the middle of the infiltration was a polygonal ulcer, parallel with the length of the intestine, its base formed by the submucous tissue, and with well-defined edges. The peritoneum covering it was injected and œdematous, and contained dilated lymph-vessels. Under the microscope were found numerous round, partly fatty cells. The writer enters into the differentiation between this syphilitic affection, tuberculosis of the intestines, typhoid, and leuchæmia. The two other cases were those of newborn children, and gave the same microscopic appearances as the first.

Simon (ib., iii, 537) quotes the views of several authors on the following questions:—whether deposits in the liver (gummata) are so far characteristic of syphilis, that without any further history, or the presence of any constitutional affection, the disease may be recognised; and whether there are cases in which hereditary syphilis may lie latent for years, even up to puberty, before it is developed. In opposition to Dittrich, who answers both questions in the affirmative, the author considers them still unsettled. He gives two cases, from his own experience, as matter for the discussion of these points.

Bradley ('Brit. Med. Journ.,' 1871, i, 116) gives the case of a child, four months old, in whom a syphilitic eruption was accompanied by the presence of albumen in the urine. There was no history of scarlet fever. The eruption and the albumen both yielded to mercurial treatment. He found, later, albumen present in two out of twenty cases of hereditary syphilis, and infers that syphilis may be a cause of granular or waxy kidney; and that the chronic albuminuria resulting from these changes should be treated with small doses of mercury.

Lane, "Clinical Records of the Therapeutic Value of Iodine in the Treatment of Syphilis," 'Lancet,' 1871, i, 267. Berkeley Hill, "Clinical Records of the Therapeutic Value of Iodine in the Treatment of Syphilis," ib., i, 305. Buzzard, "Clinical Records of the Therapeutic Value of Iodine in the Treatment of Syphilitic Nervous Affections," ib., i, 339. Lee, "On Contagion (Syphilitic)," ib., i, 472. Berkeley Hill, "Early Syphilis," ib., ii, 599. Fox (Tilbury), "Primary Sore on the Lip of a Child," ib., i, 536. Hutchinson, "Report on Vaccino-Syphilis," ib., ii, 143. Spencer Watson, "Ptosis, Mydriasis, and Hyperæmia, with Anæsthesia of the left side of the Face, in a Syphilitic Patient" (female, æt. 22), ib., ib., ii, 676. Jeaffreson, "Syphilitic Ptosis and Paraplegia," ib., 1872, i, 252. Pollock, "Case of Paralysis in a Syphilitic Subject treated by large doses of Iodide of Potassium: cure," ib., ib., i, 255. Dowse, "Syphilitic Growth of right Cerebral Hemisphere" (woman, æt. 33, autopsy), ib., ib., i, 539. Fairlie Clarke,' 'Case of Icthyosis Linguæ" (in a syphilitic subject, male, æt. 38), ib., 1872, i, 648. Lockhart Clarke, "Case of Syphilitic Disease of the Brain, complete paralysis of right arm, partial paralysis of right leg, aphasia" (male, æt. 47), ib., i, 677. Bristowe, "Softening of the Brain following Syphilis, death" (male, æt. 23: thickening of membranes and of right posterior cerebral artery, the latter occupied for an inch of its length by a cylinder of adherent fibrine, softening of anterior part of left optic thalamus, left crus cerebri, and posterior part of outer wall of right ventricle), 'Lancet,' 1872, i, 826. Hulke, "Syphilitic Stricture of Rectum, &c." (woman, æt. 25, with autopsy), ib., ii, 79. Venning, "The Modern Treatment of Syphilis," based on the evidence adduced before the Committee appointed to inquire

into the Pathology and Treatment of the Venereal Disease, published in 1867," 'St. George's Hosp. Rep.,' v, 77. Caspari, "Ueber die subcutanen Sublimat-Injectionen bei Syphilis," 'Deutsche Klin.,' 1871, 21. V. Sigmund, "Zur Beurtheilung der Subkutanen Sublimat-Injectionen gegen Syphilis," 'Wien. Med. Woch.,' 1871, No. 36 and 37. Id., "Ueber die Beschneidung bei Syphilis der Vorhaut und Eickel." ib., No. 21. Schwimmer, "Casuistische Mittheilungen aus dem Gebiete der Syphilis," ib., No. 45. Hill, "The Iodides of Ammonium and Sodium in Syphilis," 'Brit. Med. Journ.,' 1871, ii, 724. Parker, "The Modern Treatment of Syphilitic Diseases," London, 5th ed. Chorin, "Ueber den Nutzen der Schwefel-Thermen zur Ermöglichung einer Mercuriellen Syphilis-cur," 'Arch. f. Derm. und Syph.,' iii, 109. Pick, "Einige Bemerkungen zum offenen Brief des Dr. Chorin's," ib., ib., 111. Llunggrén, "Ueber Syphilis des Gehirns und Nervensystems," 'Arch. f. Derm. u. Syph.,' 1871, Bd. iii, s. 333, 509; 1782, Bd. iv, s. 254. "Ueber die Unterscheidbarkeit des Blutes Syphilitischer:"—I. Stricker, "Beitrage zur Pathologie des Blutes; II. Köbner, "Untersuchungen über die Unmöglichkeit der Diagnose der Syphilis mittelst der Mikroskopischen Blut-untersuchung," 'Arch. f. Derm. u. Syph.,' 1872, B. iv, 275, 293, and 'Wien. Med. Jahrb.,' 1872, 96. Hennig, "Erhebte Lues, Muskelleiden," 'Jahrb. f. Kinderkr.,' 1871, p. 320. Schuster, "Bemerkungen über die Art der Einwirkung der Aachener Schwefelthermen bei Hydrargyrose und bei Syphilis," 'Berl. Klin. Woch.,' 1872, 164. Paliard, "Chancre à siége insolite," 'Lyon Méd.,' ix, 37. Hutchinson, "Report on two cases in which Syphilis was communicated in the practice of Vaccination," 'Med.-Chir. Trans.,' xxxvi, 317. Id., "Syphilis from a scratch on the hand made by striking the knuckle against an opponent's tooth," 'Brit. Med. Journ.,' 1872, i, 14. Fox (T.), "Unusual form of Eruption in a Child, attributed to Syphilis: mercurial treatment: cure," ib., 1871, i, 613. Stokes, "Syphilitic Laryngitis: tracheotomy twice, recovery" (woman, æt. 30), ib., ib., 339. James, "Syphilitic Diseases of the Throat," 'Med. Press and Circ.,' 1872, i, 28. Bradley, "Notes on Syphilis, with an Appendix on the Unity of the Syphilitic Poison," London, 1872.

Pellagra.

Gemma ("Delle dermopatie Pellagrosa," 'Annal. Univ. di Med.,' ccxvii, 31) describes the skin affections occurring in pellagra, dividing them into the transitory ones, showing themselves in the spring time, and the chronic, which have a regular or irregular course. The first are nearly always of the erythematous type, running on into the wrongly so-called erysipelas pellagrosum. The eruption appears most frequently on the backs of the hands, spreading from thence over a large part of the forearm, sometimes on the backs of the feet, the face, and the upper parts of the breast, all of them places exposed to the sun. The skin is more or less reddened and swollen, and the affection may last from a few days to some months. With the increased temperature at the commencement of summer the condition of the parts affected undergoes certain changes. Itching is never present. After the eruption has lasted some time the hand has a white shining appearance, desquamation commences in large scales, the skin below appears atrophied, has a white cicatrised look, and feels velvety. Sometimes the erythema comes out in patches, or in papules closely crowded together, and here and there confluent. More advanced stages are met with in which the redness is much deeper, and the patient complains of the burning pain, though in many cases of the worst kind cutaneous sensation is abolished. Large vesicles and pustules occur, succeeded by scabs and by desquamation, and by a pigmentation lasting a longer or shorter time. In other cases, again, the vesicles stand so thick together that the affection deserves the name of eczema pellagrosum.

The treatment of the lighter cases consists in keeping the parts affected from the sun, and in the severer to apply, night and morning, an ointment composed of olive oil, laurel water, and acetate of lead.

In the chronic forms of the eruption occur—(1) Branny desquamation or larger scaling of the epidermis, taking place not only as a consequence of an antecedent erythema on the exposed parts, but on the covered portions of the body also, sometimes extending over the whole of the latter, and consisting in an hypertrophy of the rete mucosum, in which the nails also take part. (2) Pigmentation of the skin (Lentigo or Chloasma), remaining for several years. (3) Cracks in it, extending to the rete mucosum. (4) An anæmic or sallow appearance. (5) Livid spots on the lower extremities, noticed only in women. (6) Œdema of the skin. (7) A livid colour of the lips, already noticed by Strambio in cases of pellagra. (8) A shagreen roughness, accompanied by atrophy of the skin. (9) Purpura hæmorrhagica, with the symptoms, in some cases, of the hæmorrhagic diathesis. (10) Lichen miliformis. (11) Separation of the epithelium of the mucous membrane of the tongue and mouth, in the worst and latest stages of the disease, generally accompanied by diarrhœa pellagrosa. (12) Onychogryphosis, partly spurious, from disappearance of the fat under the bed of the nail, and partly true, from hyperplasia of the latter. (13) Atrophy of the skin, accompanying general atrophy, in the last stages of the affection.

Maas ('Berl. Klin. Woch.,' 1871, 363) gives two cases of so-called sporadic pellagra occurring in children, æt. 13 and 15, whose parents presented the history of syphilis.

Gemma ("La pellagra dei lattanti e dei bambini," 'Gaz. Med. Lomb.,' 1871, 349) describes this affection as it occurs in young children and in children at the breast. They present a roughness of the skin, especially on the forearms and cheeks, with a brownish colour, deepening as they grow older, dry and generally livid lips, watery eyes, slight œdema of the lower eyelid, a red or pale tongue, with enlarged papillæ. In addition to symptoms of general innutrition, catarrh of the bronchi, diarrhœa, &c., there is a peculiar form of dyspnœa, something like that of asthmatic patients, vulgarly called bellowing (mantesament) or wheezing (buffament) by the Lombard women. There may be sleeplessness or a lethargy, out of which it is difficult to rouse them. In one case the author noticed symptoms resembling the delirium pellagrosum of adults. The general cause seems to be hereditariness, and, beyond doubt, feeding with maize. The treatment consists of half-gramme doses of chloride of iron in the course of the day, as long as diarrhœa continues, and afterwards arseniate of quinine, cod-liver oil, warm baths with chloride of sodium, animal food, with omission of the maize. Eighteen clinical cases are given in illustration.

Other papers are—

Billod, "Traité de la Pellagre, d'après des Observations recueillies en Italie et en France," Paris, 1870. Balardini, "Progressi della questione della Pellagre dopo l'anno 1855 in Italia e in Francia, e conclusioni sulla etiologia, sulla profilassi et sulla cura di tale malattia," 'Ann. Univ. di Med.,' ccxvii, 70. Gemma, "Sull' Arsenico nella Cura della Pellagra," ib., ccxv, 564. Strina, "Casi di Pellagra

curata col metodo Lombroso in Tornaco," ib., ccxvi, 559. Strambio, "Intorno alla cura della Pellagra," ib., 17. Cristina, "Pellagra con Tuberculosi curata coll' Acido Arsenicoso," ib., 190. Manzini and Dotti, "Dell Arsenico nella Cura della Pellagra e della Pazzia," ib. 69; and see a very long paper by Lussana ("Sulla Cause della Pellagra), ib., 1872, 351, with discussions on the same by Balardini (ib., 189) and Lombroso (ib., 221, 351). Lombroso, "Studi Clinici ed Esperimentale sulla Pellagra," Bologna, 1871.

Leuchæmia.

Salkowski ('Virch. Arch.,' l, 174, and lii, 58) has made some curious clinical researches into Neumann's case of uncomplicated leuchæmia lienalis (cf. Neumann, 'Arch. d. Heilk.,' xi, 1). In his last communication he gives the following analyses of the urine; its quantity varied, in the course of ten days, between 560 and 1440 cubic cm. The proportion of urea varied between 10·42 and 27·2 grms., averaging 19·358 grms. The proportion of uric acid varied between ·646 and 2·085; its mean 11·108. Its proportion to the uric acid was 1 : 17·4, showing marked increase in the amount of the latter. A little albumen was always present. There was no lactic acid; slight traces of formic and other volatile acids. The author, in conclusion, draws attention to the fact that Leyden has several times tried galvano-puncture of the spleen, with the only result of causing its temporary enlargement.

Reincke ('Centralbl.,' 1871, 222) gives the appearances found post-mortem in a patient suffering from advanced leuchæmia lienalis. The retina was beset with numerous small hæmorrhages, increasing in number towards the periphery. These were rounded and prominent, and present in all the layers of the retina. Red globules occupied generally the outer portion, and white cells almost alone their centres. The optic nerve was normal. He considers that there is, in these cases, a simple extravasation of leuchæmic blood, and does not agree with Leber in looking upon them as lymphatic new growths.

Wood ('Amer. Journ. of Med. Science,' lxii, 373), in a paper on the "Relations of Leucocythæmia and Pseudoleukæmia," desires to show that there is a "third form" of the latter disease, a *splenic variety*, which he thinks has been formerly described under the names of tumours of the spleen, splenic cachexia, &c., and he gives the following case, which he holds is sufficient to prove the point. A man, æt. 30, serving in the army in Virginia during the rebellion, had suffered severely from camp-diarrhœa or dysentery. In 1870 he was taken with a dragging and heavy pain in the back and left side, believed for the next two months to be rheumatism. During the succeeding two months he rapidly lost flesh and strength, and in August came under observation. He was then very thin and weak, though able to walk; the skin was pale, the abdomen enlarged, spleen and liver extremely so, with slight œdema of legs; there was no increase in the white cells. In October he died. The spleen, at the autopsy, was eight inches long, five and three quarters broad, and nearly four thick; the liver was also much enlarged; the lymphatics of the thorax, abdomen, and axilla were much increased in size. The writer proceeds to discuss the question whether there is any change in the marrow of the bones peculiar to leucocy-

thæmia, and gives three other cases, which presented hyperplasia of the medullary cells.

Waldeyer, "Diffuse Hyperplasie des Knochenmarkes, Leukämie," 'Virch. Arch.,' lii, 305. Neumann, "Kernhaltige Blut-zellen bei Leukämie und bei Neugeborenen," 'Arch. d. Heilk.,' xii, 187. Id., "Ein neuer Fall von Leukaemie mit Erkrankung des Knochenmarkes," ib., xiii, 481. Mosler, "Die Pathologie und Therapie der Leukämie," Berlin, 1872, 283 (reviewed 'Deut. Arch.,' ix, 359). Eames, "Case of Leucocythæmia," 'Dubl. Journ.,' li, 388; 'Brit. Med. Journ.,' 1871, i, 653. Ward, "Leukæmia Lymphatica" (man, æt. 24, with autopsy), 'Lancet,' 1872, i, 577. Patchett, "Leucocythæmia, great hypertrophy of spleen, constant deposit of uric acid in urine" (woman, æt. 23, death from fractured base of skull, autopsy), ib., ib., 682.

Microcythemia.

Under the term *Microcythemia*, Vanlair and Masius ('Bull. de l'Acad. Méd. Belge,' v, 515) describe a morbid state characterised by the presence in the blood, in considerable numbers, of red cells (microcytes), distinct from the ordinary blood-cells. One case, that of a young woman attacked soon after her first confinement, is given in full, and the paper, which enters at great length into the symptoms, the examination of the blood and urine, &c., seems to be based upon this case. The symptoms are described as pains over the epigastrium and spleen, hypertrophy of the latter, atrophy of the liver, remittent jaundice, temporary aphonia, and paralysis of the limbs. A sister of the patient was said to have presented the same train of symptoms some years previously.

Progressive Muscular Atrophy; Pseudo-Muscular Hypertrophy.

Martini ("Zur Kenntniss des Atrophia Musculorum Lipomatosa," 'Centralbl.,' 1871, 641) has examined the muscles of a patient who died of this affection, both in the fresh state and after hardening in chromic acid. He observed in the striated substance round or oval fissures, at first small, which either had a central position, singly or in pairs, or were distributed over the transverse section of the primitive bundle to the number of ten or twelve. The fissures increased from atrophy of the striated substance or the unchanged septa, till at last tubular fibres, analogous to the muscles of insects, were formed. Their contents consisted of a homogeneous protoplasmic mass (serous, as opposed to simple atrophy). This observation disposes of the view that in progressive lipomatosis no other change takes place but increase or decrease in thickness of the muscular fibres. The same change (serous or tubular atrophy) is found to take place in other cases, in which the muscles become atrophied through pressure of new and growing tissue (fat, sarcoma).

Eulenburg ('Virch. Arch.,' liii, 361) records three cases, in which the affection first showed itself in three sisters successively in the eighth year of their age. They were the only children of healthy parents, who do not seem to have presented any hereditary affection, and were themselves quite well up to this period. He gives a full account of the cases, and compares with them the report by Meryon ('Gaz. des Hôp.,' 1854, No. 127) of the occurrence of the affection in four brothers, and another,

by his own father ('Deut. Klin.,' 1856), in two brothers. He believes that the pathological origin of the disease must be looked for in some congenitally defective formation of the central nervous system, probably in the cells of the grey substance of the spinal cord.

Vogt ('Berl. Klin. Woch.,' 1871, 265) contributes a case of progressive muscular atrophy. The patient, a man, had lived a hard life, and had suffered from ague and a severe attack of typhoid. The disease had not made any advance for the last year and a half. The treatment consisted of good nutrition. He gives a summary of seventeen cases occurring in the period 1863-71. Of these, thirteen were men, two women, and two children. He refers the origin of the affection to severe labour in the majority of cases, to exposure to cold and wet, and in two cases to typhoid and ague. Generally speaking, the muscles of the ball of the thumb were first affected, then the deltoid, biceps, triceps, &c. The same rule seems to hold for the frequency with which these muscles are attacked separately. The abdominal muscles and the diaphragm were not affected in any case. No case improved; one only was stationary.

Gombault ('Arch. de Physiol.,' 1872, iv, 509) publishes a case of progressive muscular atrophy, accompanied by glosso-labio-laryngeal paralysis, in a woman, æt. 58, under the care of Charcot. The autopsy showed pigmentary degeneration of the nerve-cells of the hypo-glossal nucleus in the medulla oblongata, &c., sclerosis of the anterior pyramids and antero-lateral columns; disorganisation of the anterior grey substance in parts, yellowish colour of the muscles of the face and upper extremities, many of the fibres having lost their transverse striæ and undergone granular degeneration. The case confirmed the connection already pointed out by Charcot, between rigid contraction of the joints, which existed in this case, and sclerosis of the lateral columns of the cord (and see 'Gaz. Méd.,' 1872, 641).

Knoll ('Wien. Med. Jahrb.,' 1872, s. 1) describes a case of paralysis pseudo-hypertrophica in a boy aged 13 years. He was the only child of healthy parents, and no history could be obtained of any former affection. The muscles of the lower extremities and the lower portion of the trunk as high up as the last rib, were much enlarged, while those of the upper part were of the normal size, and especially showed no signs of atrophy. The apparently hypertrophied muscles were not weak and flabby, as other observers have noticed, but tough and hard. This condition was explained by the microscopical examination of a portion of muscle excised from the left gastrocnemius. The muscle fibres were found to be separated by broad tracts of fibrous connective tissue, poor in cells, and interpersed with fine nuclei. This interstitial tissue contained no fat, either in the form of cells or drops. The fibres themselves showed marked differences in their diameter. The majority of them were of moderately normal calibre; some were less than the normal, others again exceeded it considerably. No relation could be made out between their size and that of the masses of interlying connective tissue. The transverse and longitudinal striation of the fibres was well preserved, but delicate, and the distance between the former unusually small. Separate fibres, especially the thicker ones, often split up into two equal

parts. (To show that these appearances were not due to any mode of preparation, he made various comparative researches on muscle from a boy who had died of acute inflammation of the lungs.)

The muscles examined showed no granular or fatty appearance. He refers to other investigations in cases of progressive muscular atrophy, in which a simple, non-fatty degeneration of the fibres has been found, and he thinks that upon these grounds a sharp distinction between the two forms of disease can be drawn. He believes that the connective-tissue induration of the muscle represents an earlier stage of the affection; that the fatty infiltration of the muscles, like the lipomatosis occurring after the division of nerves, is one stage of the same pathological disease. But the development of fat is no essential symptom of the affection, and Duchenne's name of paralysis pseudo-hypertrophica is, therefore, still the most convenient. The affected muscles reacted with a weak induction-current as healthy ones: with a strong current, only feebly, and without power of locomotion. A long disquisition succeeds on the contractions occurring in paralysis pseudo-hypertrophica, and on the secretion of urea. As to whether the disease be a primary affection of the muscles, or due to an affection of the central nervous system, he thinks cannot as yet be decided.

Duchenne ('Gaz. des Hôp.,' 1872, 634) publishes a note on the pathological anatomy of pseudo-hypertrophic paralysis in five more cases, which only confirm his former researches.

Barth. "Beiträge zur Kenntniss der Atrophia Musculorum Lipomatosa" (man, æt. 44, autopsy), 'Arch. d. Heilk,' xii, 121. Tillaux, "Atrophie Musculaire Consecutive aux Congélations," 'Bull. Gén. de Therap.,' t. 80, p. 226. Banks, "On Progressive Muscular Atrophy" (three cases, one death, autopsy incomplete), 'Brit. Med. Journ.,' 1871, i. 2. Pepper, "Clinical Lecture on a case of Progressive Muscular Atrophy," 'Philadelph. Med. Times,' 1871, i, No. 18 (quoted in 'Centralbl.,' 1871). Auerbach, "Ein Fall von wahren Muskelhypertrophie" (man, æt. 21), 'Virch. Arch.,' liii, 234. Down, "Case of Paralysis, with apparent Muscular Hypertrophy," 'Trans. Path. Soc.,' xxi, 24. Id., "Case of Pseudo-hypertrophic Paralysis," ib., 29. Chapot-Duvert, "Atrophie Musculaire Progressive, guérison au moyen des courants continus," 'Bull. Gén. de Thérap.,' t. lxxi, 134. Orsi, "Cenno sull' Ipermegalia Muscolare, Paralitica, Progressiva, e Storia Clinica di uno caso della stessa," 'Gaz. Med. Lomb.,' 1872, 117. Butlin, "Condition of the Muscle in Pseudo-Hypertrophic Muscular Paralysis," 'St. Barth. Hosp. Rep.,' viii (1872), 124. Greenhow, "Case of Progressive Muscular Atrophy," 'Clin. Soc. Trans.,' v (1872), 210. Davidson, "On Pseudo-Hypertrophic Muscular Paralysis" (three cases, with photographs, &c.), 'Glasg. Med. Journ.,' iv, 289.

Diabetes.

Zimmer ("Die Nächste Ursache des Diabetes Mellitus;" 'Deut. Klin.,' 1871, 41) quotes the experiments of Bernard, Pavy, &c., to show that the production of sugar from glycogen is increased in the liver by great congestion, in the muscles by contraction, and in the whole body by large venesections. The mode of working in all these cases he finds in the larger amount of water acting as a ferment upon the glycogen of the different organs. The same process occurs in artificial diabetes, only in larger amount and for a longer time. In Bernard's experiment of pricking the floor of the fourth ventricle, in division of the splanchnic nerve, in destruction of the upper cervical ganglion, or extirpation of

the solar ganglion (Klebs), the same result occurs. In all there is paralysis of the contractile elements of the blood-vessels in the liver; and in all these he sees the same action of the water, the same fermentation of the glycogen, the same swelling of the liver cells, which he believes to be at the bottom of what may be distinguished as two forms of artificial diabetes, the one produced by paralysis of the vessels, the other by changes in the nutrition of the cells, of the liver. In the same way he explains the occurrence of diabetes in men. In autopsies of these cases the liver is frequently found filled with blood.

Salinger ('Beitrag. zur Diagnose des Diabetes Mellitus,' ib., 306) holds that the nature of a disease is identical with its seat in any given organ to which it may be referred, and, therefore, the mucous membrane of the digestive organs is the original seat of diabetes. So long as arterial blood contains no sugar, none can be abstracted by any of the organs, nor, consequently, taken up by the veins or lymphatics. If, however, sugar be found in the vena cava and right ventricle, it must have entered by the thoracic duct and the capillaries of the small intestine; consequently the intestinal mucous membrane is the only seat of the formation of sugar (!).

Kratschmer ('Wien. Med. Woch.,' 1871, No. 8) concludes from his researches into the action of opium and morphia in diabetes, that patients affected with this disease easily bear large doses of opium; and that not only is the secretion of sugar considerably diminished by the drug, but even arrested for a shorter or longer period. The same result follows the use of morphia.

Donkin, "The Skim-milk Treatment of Diabetes and Bright's Disease, with Clinica Observations on the Symptoms and Pathology of these Affections," London, 1871, pp. 317. Bouchardat, "Eaux de Vals dans la Glycosurie," 'Gaz. des Hop.,' 1872, 421. Duboué, "De l'Odeur Acide de l'Haleine comme signe Diagnostique du Diabète," ib., 802. Salomon, "Geschichte der Glycosurie von Hippokrates bis zum Anfange des 19 Jahrhunderts," 'Deut. Arch.,' viii, 489. Sedgwick, "On Temporary Glycosuria as a sequel of Cholera," 'Med.-Chir. Trans.,' liv, 63. Nicol, "Case of Diabetes Mellitus under Milk-treatment: death" (boy, æt. 15, the autopsy showed slight atheroma of the aortic valves and aorta, fatty liver and (probably) kidneys, slight milkiness of the arachnoid, other organs normal), 'Brit. Med. Journ.,' 1871, ii, 64. Smith, "Case of Acute Diabetes, with Clinical Remarks" (boy, æt. 16, no autopsy), ib., ib., 728. Donkin, "Further Observations on the Skim-milk Treatment of Diabetes Mellitus," 'Lancet,' 1871, i, 603. Pyle, "Cases (two) of Diabetes," ib., 1872, i, 718. Balfour, "On the Treatment of Diabetes by Lactic Acid" (seven cases), 'Edin. Journ.,' xvii, 533. Guéneau de Mussy, "Études sur la Traitement de la Polyurie," 'Gaz. des Hôp.,' 1871, 389.

Rheumatism.

Ferber ('Arch. d. Heilk.,' xii, 80) gives the further history and autopsy of a boy whose case he had already recorded (see last 'Report,' p. 99). The patient suffered from joint-affection, chorea and heart disease. The attacks of rheumatism were repeated frequently, accompanied by a cluster of enlarged cervical glands, such as occurs in spinal meningitis. The brain and spinal cord were not examined; the pericardium was completely adherent; the valves were deficient, and the muscle fatty. He gives a case of the same kind still under treatment. The patient was a boy of two years and eight months, whose father

had had rheumatism, and whose grandfather had suffered from convulsions and paralysis. In May and September of 1868 the child had had two attacks of eclampsia. In April, 1869, there was swelling of both his feet, with fever. This was followed by choreic movement of the hands and face, and head symptoms. By the end of May the child was completely well. The same attack occurred a year later, and at this time a rasping murmur was heard over the heart, disappearing soon afterwards. The patient was well again by the middle of May. The author looks upon this case as one, not of simple articular rheumatism, but of meningeal affection.

Andrew ('Clin. Soc. Trans.,' v. 229) gives the case of a boy, æt. 16, in whom a wide daily range of temperature in rheumatism was associated with disease of the heart, vegetations on the mitral valve, and infarction of the spleen.

Handfield Jones ('Lancet,' 1871, ii, 636) gives a summary of five cases of acute rheumatism, treated with drugs. He concludes that the affection has no fixed period of continuance, but is on the contrary subject to very considerable variations. These, he thinks, depend on the *quality* of the individual system, by which also the choice of remedies should be guided. He gives alkalies in cases where the urine and sweat are acid; where the pulse is small and the patient weak they are injurious; in such cases quinine in full doses is very often of great service. Blisters, which are valuable agents in relieving pain, do not curtail the course of the disease; in some cases they add to the nervous irritability. Purgatives should always be given at the outset, and when the tongue is foul, &c. The subcutaneous injection of atropia is generally the best remedy for the pain.

Foster ('Brit. Med. Jour.,' 1871, ii, 722) gives an account of articular pains, resembling in all particulars those of rheumatic fever, observed in two diabetic patients, to whom lactic acid had been administered.

Esmarch ('Berl. Klin. Woch.,' 1871, 422) employs ice continuously till all the symptoms of acute rheumatism have disappeared. He records four cases in which it was used with the very best results. He lays stress on the difference between this employment of ice and cold applications, asserting that the latter may, from the continual change of cold and warmth, make the affection worse.

Roth ('Virch. Arch.,' liv, 375) gives an account, with plates, of the autopsy of a pig, six months old, which eight days before death was seized with loss of appetite, and symptoms resembling those of so-called malignant erysipelas. The free edges of the tricuspid were thickened; vegetations were present on the other three sets of valves; both hip-joints, the right knee, and left shoulder-joint had increased fluid, and thickened and hyperæmic synovial membranes. He concludes from the alterations found, that this was a case of recurrent valvular endocarditis combined with recent inflammation of the joints.*

Fox, "On the Treatment of Hyperpyrexia, as illustrated in Acute Articular Rheumatism by means of the External Application of Cold," London, 1871, pp. 78. Anderson, "Cerebral Rheumatism" (3 cases, no marked post-mortem appearances), 'Brit. Med. Journ.,' 1871, i, 529. Gillard, "The Treatment of Acute Rheumatism.

* Might this not be a case of pyæmia?—A. B. S.

by Morphia Injection," ib., ib., 118. Ridge, "On Rheumatism," 'Med. Times and Gaz.,' 1871, ii, 185. Moxon, "Case of Cerebral Rheumatism treated by Cold Bath" (man, æt. 23, highest temperature 106·2°, recovery), ib., ib., 243. Sutton, "Case of Rheumatic Fever with Moderately High Temperature, successfully treated by Baths" (girl, æt. 16, first attack, mitral systolic bruit, highest temperature, 104·4°), 'Lancet,' 1872, i, 46. Ogle, "Severe Case of Acute Rheumatic Fever" (man, æt. 23), ib., 1871, i, 445. Id., "Several Cases of Rheumatic Fever," ib., ib., 682. Silver, "Case of Rheumatism treated with Veratrum Viride," ib., ib., 193. Weber, "A Case of Hyperpyrexia (heatstroke) in Rheumatic Fever, successfully treated by Cold Baths and Affusions," 'Clin. Soc. Trans.,' v (1872), 136. Russell, "Case of Rheumatic Pericarditis and Pleurisy (girl, æt. 12, affected with chorea); "A Case of Double Pleurisy" (boy, æt. 15), each with very slight rheumatic development, 'Med. Times and Gaz.,' 1872, i, 487. Fox, "Case of Acute Rheumatism, Death" (negro, æt. 27, autopsy, highest temperature 105·3°), 'Glasgow Med. Journ.,' iv, 403. Southey, "Acute Rheumatism with Cerebral Symptoms and High Temperature (105·5°) treated unsuccessfully by Cold Affusion" (man, æt. 35, autopsy), 'Lancet,' 1872, ii, 562. Russell, "Death from Obstruction of the Pulmonary Artery in the course of Pericarditis occurring during the fifth attack of Acute Rheumatism," ib., ib., 707.

Scurvy; Purpura, &c.

The greater number of writers on scurvy during the last two years are to be found among the French, who seem to have had good reasons to observe the affection during and after the late war, at Paris and elsewhere.

Hayem ('Gaz. Hebd.,' viii, 227) gives a sketch of the affection based on forty cases; he recognises a primary and secondary form, the latter occurring after typhus, tuberculosis, &c. He also gives a note of eight autopsies (and see 'Gaz. Méd.,' 1871, 127, ib., 157).

Chalvet ('Union Méd.,' t. xii, p. 525) finds the blood of scorbutic patients is more fluid and paler than normal, resolving itself into an extremely dense, small clot, with an unwonted amount of serum. Becquerel and Rodin had found an increase in the number of red cells; but Chalvet finds the reverse. The amount of water and albumen is increased.

Legroux, "Le Scorbut," 'Gaz. Hebd.,' viii, 97. Verneuil, "Du Scorbut Compliquent les Lésions Traumatiques," ib., 149. Bucquoy, "Le Scorbut à l'Hôpital Cochin pendant le Siége de Paris," ib. 321. Lasegue, "L'Épidemie de Scorbut dans les Prisons de la Seine et à l'Hôpital de la Pitié." 'Arch. Gén.,' xviii, 5. Leven, "Une Épidémie de Scorbut Observée a l'Hôpital Militaire d'Ivry pendant le Siége de Paris," 'Gaz. Med.,' 1871, 431. Laboulbène, "Sur l'Examen Microscopique du sang dans le Scorbut Observé à Paris en 1871," 'Compt. Rend.,' lxxii, 411. Poncet, "Observation d'Hémophilie: autopsie" (boy, æt. 16), 'Rev. Méd.,' 1872, i, 41. Legg, "Four Cases of Hæmophilia," 'St. Barth. Hosp. Rep.,' vii, 23. Ward, "Case of Purpuric Fever" (with autopsy), 'Lancet,' 1871, i, 647. Id., "Seven Cases of Scurvy," ib., ii, 397. Brigstocke, "Cases of Hæmophilia," 'Brit. Med. Journ.,' 1872, ii, 122.

Rickets.

Ritchie ('Med. Times and Gaz.,' 1871, 1, 9) observed the morning and evening temperature of eleven children affected with uncomplicated rickets for eight days. The bulb was placed in the rectum for five minutes between 9 and 10 a.m. and p.m. The ages of the children ranged between 10 months and 3 years. The mean result thus obtained was 99·13° F. for the morning and 97·44° for the evening.

Fleischmann ('Wien. Med. Woch.,' 1871, No. 50) treats of rachitis

with especial reference to the pause in the development of the teeth. On the average a month, to a month and a half, occurs between the appearance of the several incisors, and two, to two and a half months, between that of the several canine and back teeth; so that the twenty milk teeth are appearing up to the end of the second year. Generally after the eruption of the incisors, between them and the first back teeth, the first symptom of rickets is shown in the cessation of the tooth development. This is followed by the other symptoms, and the later teeth are cut before they are fully formed.

Grunhut and Jay, "Three Cases of Rachitis in Children," 'Amer. Journ. of Obstet., &c.,' 1871 (August), p. 317. Parry, "Rachitis" (case of coloured boy, æt. 9 months, with autopsy), 'Amer. Journ. Med. Sci.,' lxi, 427. Id., "Observations on the Frequency and Symptoms of Rachitis, with the Results of the Author's Clinical Experience," ib., lxiii, 17,

Addison's disease.

Laschkewitsch publishes ('Wien. Med. Jahrb.,' 1871, 425) the following:—A strong and well-nourished man of 45 suffered from excessive weakness, palpitation, dyspnœa and headache. He was extremely anæmic, the mucous membrane of his lips, &c., livid, his hands and feet œdematous. His red blood-corpuscles were found to be paler and larger than normal, and underwent certain changes of form, becoming club or worm-shaped. Processes were protruded from them and again retracted. Lastly they broke up into fragments. The addition of weak acetic acid accelerated the phenomena. Heat and electricity made no difference. The patient's condition improved in the course of a month under tonics; the numerical proportion of the red cells increased; they became intensely coloured, but still retained the capability of undergoing change in form. Three months later the patient returned with bronze colouration of the face, neck, nipples, scrotum, &c.

Tuckwell ('St. Barth. Hosp. Rep.,' 1871, 73) gives a case of Addison's disease in a woman æt. 31, with a full account of the post-mortem examination and the microscopic appearances found in the capsules. The latter were enlarged, hard and nodulated, on section toughly fibrous, with a dull white surface studded with small bright yellow spots. There was very great increase of connective tissue about the supra-renal plexus, the semi-lunar ganglion, and great splanchnic nerve. He opposes at length the views of Rossbach,* and in his conclusion on the nature and pathology of this disease agrees with those of most English writers on the subject.

Payne ('Path. Soc. Trans.,' xxii, 281) records a case of Addison's disease in a man æt. 32, in whom the softened and broken-down capsules were accompanied by a sooty colour of the genitals only, at any rate to any perceptible degree, and by a deposit of pigment in the connective-tissue cells of the pia mater covering the medulla oblongata and first two or three inches of the medulla spinalis.

Gilliam, "Identity of Addison's Disease and Degeneration of the Gastric Tubules," 'Phil. Med. Surg. Rep.,' 1871, xxiv, 473. Churchill, "Effects of Ether Spray upon the Skin in Addison's Disease," 'Path. Soc. Trans.,' xxii, 317. Quain and Silver,

* Cf. last Biennial Report,' p. 87.

"Addison's Disease" (man, æt. 24, capsules cretified), ib., 280. Finlayson, "On a Case of Addison's Disease" (man, æt. 33), 'Glasgow Med. Journ.,' iii, 433. Marshall, "Case of Bronzed Skin, chronic disease of the membranes of the brain, perforation of the skull, abcesses of the scalp, death" (male, æt. 63, autopsy), ib., iv, 355. Moore, "Case of Bronzed Skin without Disease of the Suprarenal Capsules," 'Dubl. Quart. Journ.,' li, 80. Russell, "Hereditary Bronze Colour of the Skin simulating Addison's Disease," 'Med. Times and Gaz..' 1871, i, 57. Nicholson, "Addison's Disease" (boy, æt. 14, autopsy), 'Brit. Med. Journ.,' 1872, ii, 121. Merkel, "Ein Fall von Bronce-Haut ohne Nebennieren-erkrankung," 'Deut. Arch.,' x, 205.

Exophthalmic Goître.

Galezowski ("Etude sur le goître Exophthalmique," 'Gaz. des. Hôp.,' 1871, 425) gives a general sketch of the affection, claiming for Demours the first description of it in 1818. He considers the affection to be a nervine one, accompanying lesion of the sympathetic nerve, such as Lancereaux and Peter found in one case in the hypertrophy and hyperæmia of the inferior cervical ganglion. He thinks the protrusion of the eye is due to the contraction of the small muscles in Tenon's capsule, supplied by that nerve.

Emmert ("Historische notiz über Morbus Basedowi, nebst Referät über 20 selbst beobachtete Fälle dieser Krankheit," 'Arch. f. Ophthal.,' xvii, 203) gives the first description to an Englishman ('Collections from the unpublished writings of the late C. H. Parry,' 1825).

Meyer ('Berl. Klin. Woch.,' 1872, 468) gives four cases of this affection in females in which good results were obtained by galvanizing the cervical sympathetic.

Hutchinson, "Cases of Basedow's Disease" (four females), 'Lancet,' 1872, i, 538. Patchett, "Exophthalmic Goitre, unusual severity of symptoms, ulcer of cornea, cured" (woman, æt. 27), ib., ib., 827.

Animal Parasites.

Udhe ('Virch. Arch.,' lii, 439) gives a table showing that of 87,111 pigs killed in the duchy of Brunswick, from Easter 1868 to 1869, six only were found to have trichinæ. Petri (ib., 440) gives another table of all the pigs (5688) slaughtered at Rostock in 1870: one only was found affected (cf. last 'Report').

In the 'Second Annual Report of State Board of Health in Massachusetts' (1871) may be found (p. 46) a report on "Trichina Disease in Massachusetts." The history and symptoms of the affection are given, and an account of outbreaks of it in 1870, one in Saxonville and the other in Lowell. In the first, three out of a family of six, who had eaten underdone fresh fried pork, were attacked, two boys, æt. 14 and 19, and their sister æt. 17. The eldest boy died with symptoms of typhoid fever. In the second case—badly reported—a mother and four children ate portions of raw smoked ham (*i. e.* not even slightly cooked, as the father took it) and became affected. Living trichinæ were found in fragments of the ham examined. As to prevention—a temperature of 150° to 160° F. is fatal to the trichina. Pickling may and does probably render the pork harmless, smoking does not. Uncooked pork muscle, *i. e.* the *lean* portion (for trichinæ are not harboured in the fat), can never be eaten with safety.

Kittel ('Wien. Med. Zeitung,' 1871, 254) describes an epidemic of trichina disease at Libau in Saxony. Over 90 people were attacked with very severe symptoms after eating the flesh of a diseased pig, and sausages made from it. He calls especial attention to the symptoms observed in the eyes. The patients had a peculiarly fixed stare, with, at any rate at first, perfectly free movement of the eyeball. The latter decreased as other symptoms of the presence of the trichinæ in the muscles of the eye showed themselves. Simultaneously occurred obstinate mydriasis, which the author refers to paralysis of the third nerve (the short root of the ciliary ganglion).

Maurer ("Eine Trichinosisgruppe aus Bayern," 'Deut. Arch.,' viii, 368) gives an account of an outbreak of trichinosis, rare in the south of Germany, at Erlangen. Almost all the cases could be traced to one butcher's shop. One patient, already affected with phthisis, died; and the post-mortem inspection proved the presence of trichinæ.

Zenker ("Zur Lehre von der Trichinenkrankheit," ib., 387) puts together the above case of Maurer's with other autopsies of cases of trichinosis occurring in Bavaria (three in Würzburg, and two in Erlangen). In opposition to the vulgar opinion, he holds that the rarity of the affection is due to the small quantity of raw flesh eaten, not to the rare occurrence of affected pigs. The latter is contradicted by the frequent occurrence of trichinæ in rats. In opposition, too, to the views of Leuckart, Pagenstecker, and others, he considers these animals as affected secondarily, and as a consequence of affected pigs in the same neighbourhood. From materials gathered in Saxony, Bavaria, Würtemberg, and Austria, he deduces certain averages as to the frequency of trichinæ in rats. At the same time he sees no reason to doubt the truth of Kühn's observations, that these trichinous rats are eaten by pigs.* The author concludes by giving certain veterinary advice which may conduce to the prevention of trichinosis among rats.

Reeb ('Rec. de Mém. de Méd.,' xxvii, 31) gives two cases of hydatids of the brain, the first in a boy æt. 5 years, in whom the most marked symptoms were a left-sided chorea, and affections of the sight accompanied by dilated, uncontracting pupils, and atrophy of the optic nerve. A prominence was gradually developed on the right parietal bone, becoming soft and pulsatile, then gradually disappeared. Later on the tumour again appeared, increased in size, with fluctuating contents. It was twice punctured, seventy two grammes of liquid being removed the first time, and seventy the second. Convulsions of a tetanic character set in some time before death. At the autopsy were found three communicating cysts, one subcutaneous, the second between the bone and the dura mater, and the third, larger, in the

* The taste of these animals is as varied as that of the higher ones who devour them. The pigs of Estremadura are said to eat locusts; and, according to Ford ('Murray's Handbook for Spain,' 1869, part ii, p. 176), the Duke of Arcos shut up his pigs in places abounding in vipers, on which they fattened. Of "ces petits jambons vermeils" the Duc de St. Simon ('Mem.,' xx, 30) writes with infinite gusto, "Ces jambons ont un parfum si admirable, un goût si relevé et si vivifiant, qu'on est surpris; il est impossible de rien manger si exquis." Cobbold ('Brit. Med. Journ.,' 1871, ii, 394) draws attention to another entozoon (*Stephanurus dentatus*) found in the hogs of America and Australia.—A. B. S.

posterior lobe of the right hemisphere, surrounded by a thin layer only of brain substance. This further communicated with the lateral and middle ventricles, and terminated in a vast pouch in the posterior lobe of the left hemisphere. Numerous hydatids were found throughout the cavities. The whole brain, including the central ganglia, was more or less softened. The second case is that of a boy, æt. 18, who after frequent attacks of intermittent fever suffered from acute supra-orbital neuralgia. Hemiplegia, followed by coma, occurred, and four days later he died. Post-mortem, the whole right hemisphere was found to be destroyed by a large cyst filled with hydatids. As in the former case, it was surrounded by a thin layer of brain substance, but was compressed by the skull bones.

Zuber ('Gaz. des Hôp.,' 1872, 730) records the occurrence of two hydatid cysts in the lung of a man, aged 22. The symptoms were those of acute tuberculosis. Rupture of one sac took place into the pleura and was followed by death.

Hirschberg ('Berl. Klin. Woch.,' 1872) removed cysticerci from the eye of a woman and of a boy.

The 'Lyon Méd.' (x, 341) quotes a case recorded by Armour ('Detroit Review of Med.'), in which portions of tænia solium were passed by a child three days old.

Dickinson, "Three Cases of Trichiniasis after Eating Home-fed Pork," 'Brit. Med. Journ.,' 1871, i. 446. Huber, "Einige Notizen über Echinococcus Multiloculares," 'Virch. Arch.,' liv, 269. Frommann, "Zur Casuistik der Trichiniasis," ib., liii, 501. Fagge and Durham, "On the Electrolytic Treatment of Hydatid Tumours of the Liver," 'Med.-Chir. Trans.,' liv, 1. Giraud-Teulon, "Cysticercus Ladrique (C. cellulosæ) dans le corps vitré," 'Gaz. des Hôp.,' 1872, 12. Surmay, "Ténia Multiple," ib., 900. Leidy, "Tænia caused by the use of Raw Beef (T. medio-canellata)," 'Amer. Journ. Med. Sci.,' lxii, 293. Preston, "A Lumbricus discharged through an Abscess about the Hip-joint" (boy, æt. 13), 'Lancet,' 1872, ii, 777. Welch, "The presence of an Encysted Echinorhynchus in Man," ib., ib., 703.

Vegetable Parasites.

Richter ('Zeitschr. f. Parasitenk.,' iii, 1) finds, on examining the central portion of warts, an extremely large number of micrococci in and between the epithelial cells, and on placing them in a solution of ammonia and sugar obtains numerous and largely branched mycelia.

Hallier ("Des Parasiten des Infections Krankheiten," 'Zeitschr. f. Parasitenk.,' ib., 157) publishes the results of his experiments on the fæces of sheep which died of foot-and-mouth disease.

Tuckwell ('St. Barth. Hosp. Rep.,' viii, 125) writes on the ringworm of cattle and its communicability to man.

B. *Diseases of the Nervous System.*

Hysteria.

Charcot ('Gaz. des Hôp.,' 1871, 556) gives a lecture on two cases of hysterical contraction of the limbs, one, a woman aged 40, representing the hemiplegic type, the other, a girl aged 21, representing the paraplegic type of the affection.

Jamieson ('Edin. Journ.,' xvii, 29) gives a case of "trance" in an hysterical girl, aged 16 years.

In a clinical lecture on supposed cases of hysteria, Fuller ('Brit. Med. Journ.,' 1871, ii, 610) draws attention to the necessity of noting carefully all the symptoms, and mentions two cases of supposed hypochondriasis or hysteria, in which the symptoms during life, and the immediate cause of death, were due in one case to abscess of the brain, in the other to a small aneurism causing erosion of the spine.

Tilt (ib., ib., 690) attacks the views with regard to hysteria held "by men who own they know nothing about diseases of women;" quotes the opinion of Chambers, Russell Reynolds, and Handfield Jones, &c., and thinks that to understand rightly hysteria, catalepsy and epilepsy, "the diseases of the ganglionic nervous system" should be studied.

Rosenthal ("Ueber vasomotorische Innervationsstörungen bei Hysterie," 'Wien. Med. Zeitg.,' 1871, 182) records a fresh case of analgesia with no loss of the sense of touch, in an hysterical girl. He refers to the fact that in hysterical patients the anæsthesia and analgesia are regularly distributed according to the limits of cutaneous nerve-territories established by Voigt, and gives an interesting case illustrating certain changes in the vasomotor system. A young woman, aged 23, had suffered from hysterical and cataleptic attacks which had ceased for two years, but returned again in consequence of a blow which set up inflammation in the left mamma. These attacks were accompanied by a fall in the temperature of the hands from 93·9° F. to 87°, and in the pulse from 72 to 65; by paleness and coldness of the fingers and nails; loss of consciousness and convulsions. The attack lasted from a quarter to half an hour On the return of consciousness the pulse and temperature rose again; there was positive, as well as subjective, feeling of warmth, redness of the nails, and cutaneous perspiration. The time just before these attacks was marked by hyperæsthesia, which was rarely noticed on days which were free from them: it was present in various parts of the trunk, more frequently on the left than the right side; sometimes in the left upper and right lower extremity. At the onset and termination of the attack there was anæsthesia. Reflex movement could be excited in the hands and fingers, while the patient was still unconscious, and her pupils not acting, and were sure signs of her soon coming to herself. Morphia injections were employed, and recovery was complete on the return of the catamenia after their absence for several months.

Ferguson ('Lancet,' 1872, ii, 78) records a case of hysteria in a young girl, from whom 101 pins and needles were removed from the arms and legs.

Hodges, "Hysterical Closure of Right Eyelids cured by Galvanism," 'Lancet,' 1871, i, 378. Bazin, "Observation d'Aphasie Hystérique" (in a pregnant woman!), 'Gaz. des Hôp.,' 1871, 446. Corlieu, "Anesthésie Musculaire et Cutanée Occasionnée par un Refroidissement, ou Névrose Cataleptiforme Hémiplégique," 'L'Union Méd.,' xi, 379. Walcher, "Observation de Névrose Cataleptiforme simulée," ib., ib., 436. Kraft Ebing, "Ein Beitrag zur Erkennung und Behandlung der Hysterischen Lähmungen" (hysterical paraplegia cured by electricity), 'Berl. Klin. Woch.,' 1871, 529. Silver, "Hysterical Ptosis," 'Lancet,' 1872, ii, 117. Aitchison, "A Case of Feigned Disease," 'Brit. Med. Journ.,' 1872, ii, 120. Foss, "Notes of a Fatal Case of Hysteria" (girl, æt. 19, autopsy), ib., ib., 9.

Chorea.

Handfield Jones ('Med. Press and Circ.,' 1872, i, 24) records five cases of chorea; in one girl æt. 7 years, and two, æt. 13, in each of whom the affection lasted six weeks; in a girl of 18, in whom its duration was doubtful, and in whom there was a curious mingling of motor and mental disorders; and in one boy æt. 10 years, in whom its duration was about eleven weeks. These cases illustrate the following points. (1) The tendency of chorea proper—motor centre disorder—to be attended with an analogous state of the emotional or of the intellectual centres; (2) its liability to occur in a modified form, and to be complicated with quasi-epileptic attacks; (3) the absence of rheumatism or definite endocarditis in all the cases; (4) the varying duration and causation of chorea; (5) the certainty that the same remedy is not suitable to all cases; (6) the increased excretion of urinary solids which not unfrequently occurs in chorea.

Butlin communicates to the 'Lancet' (1871, ii, 576, 606) twelve cases of chorea in children between the ages of 7 and 10 years, treated with sulphate of zinc.

Gray and Tuckwell (ib., ii, 778) give a series of eighteen cases, six under the observation of the former, and twelve under that of the latter. In none of these was any special treatment adopted from the first onset to the complete disappearance of the symptoms, calculated to influence the nervous system. Good diet, the better hygienic conditions of the infirmary, and peppermint water were the only means employed. The cases show well how remarkably chorea is liable to vary in its duration. The most protracted case in Gray's list lasted twenty weeks, the shortest six weeks; the longest of Tuckwell's cases seventeen weeks, the shortest six weeks. The average duration of Gray's six cases is ten weeks and one day; of Tuckwell's twelve cases, ten weeks and three days. These averages have a remarkable identity with the results obtained by the use of various drugs. Gray finds the average of seven cases, taken at random, and treated with arsenic, steel, &c., to be ten weeks and two days. The mean duration of eight cases treated in succession by Tuckwell with arsenic in gradually increasing doses, after Begbie's plan, was ten weeks and six days; the longest case lasting sixteen, the shortest seven weeks. Hillier puts the mean duration of thirty cases at "about ten weeks." Sée gives sixty-nine days as the average duration of 117 cases.

Buzzard ('Brit. Med. Journ.,' 1872, i, 342) showed to the Clinical Society a female æt. 25, with atrophy of the right side of her face, after chorea.

Spender, "Two Cases of Severe Chorea rapidly Cured by Arsenic," 'Brit. Med. Journ.,' 1871, ii, 429. Andrews, "Case of Chorea with Mitral Regurgitation, treated by Conium" (boy, æt. 12), ib., i, 612. Lane, "Chorea arising from a blow," ib., 1872, i, 525. Sawyer, "Chorea following Acute Rheumatism," ib., ib., 527. Ogle, "Three Cases of Chorea (two girls, æt. 14 and 19, and a boy, æt. 18), 'Lancet,' 1871, ii, 541. Dickinson, "On Chorea," ib., i, 504. Hughlings Jackson, "Remarks on a Case of Chorea in a Dog," ib., 1872, i, 148. Radcliffe, "Case of Clonic Spasms, occurring only when the patient (girl, æt. 21) attempts to stand," ib., ib.

Epilepsy.

Brown-Séquard ('Arch. de Physiol.,' 1872, iv, 204) has arrested the fits of epilepsy which have been provoked in guinea-pigs, by section of a portion of the spinal cord, or of the sciatic nerve, by irritating the throat or larynx by carbonic acid gas. The strength of the gas must be such as to be almost insupportable by the experimenter, and must be injected with a certain amount of force. Injection of the gas simply into the nose of the animal is insufficient, though the case may be different in the human subject. The author has also verified the experiments of Rosenthal, that pulmonary insufflation arrests the epileptic attacks provoked by strychnine. At the same time he looks upon the explanation given as absolutely false, and thinks the arrest to be due not to superoxygenation of the blood, but to the mechanical irritation of the air upon the branches of the vagus distributed to the bronchi, and to the nerves of the diaphragm. The same results followed the same experiments made on pigeons and a duck.

The same writer ('Gaz. Med.,' 1872, 466) communicates to the Société de Biologie the experiments he has made to determine the path followed by irritation, which has been set up by section of the sciatic nerve, in order to reach the upper part of the spinal cord, and produce attacks of epilepsy. Section of the nerve, high up, and especially removal of the nerve, constantly produce epilepsy. But section of the cord immediately above the origin of the nerve does not do so. This unexpected fact makes him think that the epileptic symptoms are not due to section of fibres of the sciatic, but rather to section of fibres of the sympathetic contained in the sciatic nerve. He therefore attempted to divide the filaments of the sympathetic passing to the sciatic, but the task was difficult, and the results transient. On the other hand, section of the last dorsal and first lumbar roots, which furnish sympathetic filaments to the sciatic, did produce epilepsy. He thinks, therefore, that artificially produced epilepsy is probably due to section of the sympathetic nerve.

Westphal ('Berl. Klin. Woch.,' 1871, 448) has repeated and confirmed the experiments made by Brown-Séquard on guinea-pigs with reference to the artificial production of epilepsy (see last 'Report,' 107). Another interesting and new fact is shown by these experiments—that a blow on the head may set up in guinea-pigs the same epileptiform condition as direct injury to the cord, or section of the sciatic nerve. Immediately or soon after the blow an attack of general convulsion, or a series of attacks, occur. At this time there is no "epileptogenic" zone of skin, by irritating which even slightly general convulsions may be provoked; four or five weeks later, however, a cutaneous zone may be found, irritation of which provokes at first certain reflex movements, and later the epileptiform attacks. This zone has the same position—near the angle of the lower jaw—as in Brown-Séquard's experiments, and its local sensibility is diminished. The epileptiform condition lasts from one and a half to two or more months, and gradually disappears. A female guinea-pig, which had been rendered epileptic by a blow, gave birth to two young ones, in whom, on irritating the "epileptogenic

zone," incomplete but well-marked convulsions could be provoked. In all the experiments the same lesion was found, in the medulla oblongata, or upper cervical region of the cord, small hæmorrhages, generally into the sac of the spinal dura mater, less frequently at the base of the brain. According to Brown-Séquard, the essential lesion is more probably that in the spinal cord than the medulla oblongata. Whether this spinal-cord-epilepsy, produced artificially in guinea-pigs, occurs in the human subject, cannot be decided at present. He refers to something resembling the "epileptogenous zone" in some cases of epilepsy in men.

In the discussion which followed the reading of this paper (ibid., 616), V. Langenbeck remarked that epileptic convulsions do sometimes occur in the human subject after injuries, especially injuries to the head, and related a case of the kind occurring in a man æt. 44. (And see discussions in the 'Société de Biol.,' 'Gaz. Méd.,' 1872, 641.)

Martin ('Wien. Med. Ztng.,' 1871, No. 53) gives a case of epileptic fits in a man who had had an injury to the lower part of the thigh; the fits disappeared on the removal of some loose bone.

The 'Lancet' (1871, i, 356) quotes the opinion of Vance, of New York, that two well-marked groups of epilepsy may be formed in accordance with the appearances found with the ophthalmoscope; the one characterised by hyperæmia, the other by anæmia of the retina. "As the brain is anæmic during sleep, it is natural to suppose that the occurrence of sleep would be a predisposing cause of the fits in the anæmic form, whilst in the congestive form they would be most likely to take place during the day." Bromide of potassium and depletion are, according to him, indicated in the congestive form; quinine, iron, and strychnia in the anæmic.

Lutz ('Berl. Klin. Woch.,' 1871, 212) employed bromide of potassium in ten cases; in three patients no attacks occurred after six months; in two others the cure was longer; five were still under treatment. He began with one to three grains, daily increased to ten to twenty grains. He found it successful in a case of nocturnal incontinence in a girl of 18, and in nervous headache. He thinks that he found the best results from a combination of the drug with bromide of ammonium.

Magnan, "Epilepsie Absinthique," 'Compt. Rend.,' lxxiii, 341. Bussière, "De la Guérison des Neuroses Convulsives, du meilleur mode d'administration du Bromure de Potassium," 'Gaz. des Hôp.,' 1871, 501 (three cases of convulsive neurosis, cured with the Syrup of H. Mure.). Huppert, "Ein Fall von Balkenmangel bei einem Epileptischen Idioten," 'Arch. d. Heilk.,' xii, 243. Auerbach, "Ueber Behandlung der Epilepsie, nebst Krankenvorstellung," 'Berl. Klin. Woch.,' 1871, 422. Handfield Jones, "Epilepsy and other Nervous Affections resulting from the Excessive Use of Alcohol," 'Practitioner,' Feb., 1872. Ramsay, "Case of Epileptic Mania," 'New York Med. Journ.,' xiv, 280. Ogle, "Case of Epilepsy and Hemiplegia, probably Syphilitic" (woman, æt. 33), 'Lancet,' 1871, ii, 540. Jackson, "Cases of Epilepsy," ib., i, 376. Id., "Case of Epileptiform Seizure beginning in the Right Hand," 'Med. Times and Gaz.,' 1872, ii, 767. Tyrell, "On the Treatment of Epilepsy," ib., 1871, i, 36. Dickson, "Remarkable Cases of 'Le Petit Mal,'" ib., 1872, ii, 183. Id., ib., 1871, ii, 183. Id., "On the Nature of the condition called Epilepsy," 'Lancet,' 1872, ii, 251. Murray, "Epileptiform Seizures of Fifty Years' standing, relieved by Bromide of Potassium," ib., i, 539. Moir, "Remarks on a Case of Epilepsy and Delirium Tremens," ib., ib., 464. Lane,

"Injury of the Head, followed by Delirium, Epileptiform Convulsions, and Aphasia" (man, æt. 27), 'Brit. Med. Journ.,' 1872, ii, 97.

Hemiplegia and Aphasia.

Perroud ('Lyon Med.,' viii, 65) attempts to verify by statistics Brown-Séquard's assertion that the left hemisphere is the centre of intellectual and animal life, the right that of organic life. The number of hemiplegic patients observed by himself being too small for his purpose, he presses into service a note of Charcot, published in the 'Journal de Physiologie,' in 1868, containing the history of 27 cases of hemiplegia, in which death occurred in the course of a few days after the sudden attack. They were all complicated with bedsore of the thigh of the paralysed side, and this "lesion of nutrition" depended, in 16, on lesion of the right hemisphere (sores on the left side), and in 11 on lesion of the left (sores on the right side). Perroud gives an analysis of 70 cases of chronic hemiplegia observed by himself during the last four years, in 32 right-sided, 38 left-sided. Of the former, 24 had no trouble of nutrition, 8, *i. e.* one fourth of the cases, had. Of the latter, 26 had none, and 12, *i. e.* one third of the cases, had.

Fieber ('Klinische Studien über die Brown-Séquard'sche Spinallähmung," 'Wien Med. Zeitg.,' 1871, 166, &c.) records four cases of spinal hemiplegia, with muscular paralysis on one side and anæsthesia on the opposite side. He thinks these cases are more common than is generally supposed, and as overlooked when, as is often the case, sensation returns, while the paresis remains. He gives (ib., 175) a tabular arrangement of the four cases.

Verneuil gives ('Bull. de l'Acad. de Méd.,' Jan. 1871) an account of the case of a man, æt. 46, in whom, after being thrown from a cart, only numerous contusions could be found, but who presented symptoms of violent delirium, right hemiplegia, and cerebral compression. He died fifteen days later, and the autopsy showed complete rupture of the two internal coats of the left carotid, with a clot in its canal, extending into the branches of the Sylvian artery. There was extensive softening of almost the whole middle lobe.

Broadbent ('Med.-Chir. Trans.,' lv, 145) has published an important paper on the cerebral mechanism of speech and thought. His object has been, by means of the light thrown upon cerebral physiology by cases of loss or derangement of speech, to construct a theory of the subject stated, and to connect this with the facts of cerebral structure, so far as they are at present known. The paper opens with ten cases, the autopsies of which are given as fully as the histories of all. These cases, so far as they bear on the question, are entirely corroborative of the view which assigns a close functional relation with articulate speech to that part of the upper edge of the fissure of Sylvius which forms the posterior end of the third frontal convolution of the left hemisphere. The writer criticises cases which may seem to bear on the other side of the question, and states that this part of the hemisphere is not the seat of a "faculty of language," but simply a part of the nervous or cell-and-fibre mechanism, by means of which speech is accomplished, which mechanism may be damaged elsewhere, above or below this particular

node. In the cases distinguished by Bastian, Hughlings Jackson, W. Ogle, Sanders, &c., as amnesic or amnemonic, and ataxic or aphasic, the lesion has occurred at different points. Broadbent quotes his eighth case in illustration. Here, while the object seen no longer evoked the appropriate name, the name and the object presented together were recognised as pertaining to one another; the channel between the visual centre and the mind (the intellectual centre) was interrupted. The same condition occurs in severance of the auditory perceptive centre from the intellectual centre. Spoken words have lost their meaning to the patient, and he will have no idea whether he is saying what he wishes or not. Both as to mental condition and seat of lesion these cases would be different from amnesic and aphasic cases. The author states at some length the result of his own observations on the course and distribution of the fibres in the cerebral hemispheres. He enumerates the convolutions which have no direct communication with the crus, central ganglia, or corpus callosum, the said convolutions being latest in order of development, and constituting the difference between the human and quadrumanous brain, "withdrawn, so to speak, from the outer world," and "receiving the raw material of thought from the convolutions on which sensory impressions impinge, and employing for the transmission outwards of the volitional product those convolutions which are in communication with the motor ganglia and tract." He adopts, with modification, the theory of Bastian ("On the Muscular Sense and on the Physiology of Thinking," 'Brit. Med. Journ.,' 1869, May), giving it an important extension, and applying it to the facts of cerebral structure. After considering the two distinct aspects in which words may be considered—1, as motor processes, 2, as intellectual symbols—and expressly stating that reading and writing have been kept out of sight for the sake of clearness, and the mechanism of thought as sufficiently explained in the consideration of that of speech, he gives the following as a *résumé* of his theory:

(1) Words, as remembered sounds, will be represented by cell-groups at the summit of the receptive side of the nervous system, which, for reasons given, is supposed to be situated in the marginal convolutions of the hemispheres.

(2) From these cell-groups, when definitely formed, impressions will be transmitted to a cell-area in the superadded convolutions, to which also impressions conveying to the mind the various properties of objects indicated by the words will be transmitted; all these impressions are associated, and the word is employed as the symbol for the resulting idea of the object.

(3) Almost simultaneously motor cells in the corpus striatum are grouped for the production of articulate words, under the guidance of the remembered sound, in response to efforts at imitation, which are at first more or less parrot-like. The cell-groups for spoken words once formed are, however, employed almost exclusively in intellectual expression.

(4) The receptive cell-groups for remembered sounds will be found in the marginal convolutions of the two hemispheres, which are symmetrically associated by the corpus callosum, and the cell-groups for spoken sounds will be found in the two corpora striata; but the absence of

commissural connection between the superadded convolutions of the two hemispheres permits of the predominant, if not exclusive, education of the left hemisphere for the verbal expression of the product of intellectual action, as has been revealed by pathology. This is an efferent process, and does not imply the exclusive use of the hemisphere in thought.

(5) The outlet for intellectual expression in spoken words, which are motor acts, is necessarily in some part of the marginal convolutions in relation by fibres with the corpus striatum, and pathology has shown the point to be the left third frontal gyrus.

(6) The left third gyrus being the outlet for expression, the left corpus striatum necessarily takes the lead in the production of spoken words, but a way round exists, probably, from the left to the right third frontal gyrus by the corpus callosum. Thus, speech, though temporarily embarrassed by damage to the left corpus striatum, is recovered; whereas, if the cortex of the left third frontal convolution is damaged, or its fibres, both to corpus striatum and corpus callosum, cut through, speech, having no other outlet, is lost.

Bristowe ('Brit. Med. Journ.,' 1871, i, 122) read a paper on cases illustrative of the various forms of impairment or loss of the power of speech. Considering aphasia under three heads, he gave first four examples of that form which is due to a mental defect, independent of any affection of the organs of speech (amnesia, amnestic aphasia). All these four cases had hemiplegia of the right side. Though in these cases the lesion was on the left side of the cerebrum, he yet affirms, with Trousseau, that aphasia in some instances is obviously the result of disease of the right hemisphere, and holds that the dependence of aphasia on disease of a particular convolution, whether on the right or left side, is at present very far from certain. As an illustration of the second form of aphasia, in which the patient, without any mental defect, or paralysis of the organs of speech, loses the power of speech absolutely, he gave a case in which he had succeeded in teaching a person to speak (cf. 'Trans. Clin. Soc.,' iii, 92). He thinks that cases of this kind lead to the conclusion that speech, when once acquired, is a purely reflex phenomenon, similar to the acts of deglutition and respiration; that there is some ganglionic centre intermediate between the cerebrum (which thinks and wills), and the nuclei of the motor nerve of the fifth, the portio dura, and the hypoglossal nerves, and that aphasia is due in these cases to disease of this co-ordinating centre. The third form was illustrated by a case in which the nerves of speech were paralysed, either from disease affecting some of the trunks, or their nuclei of origin.

Samt ("Zur Aphasiefrage;" 'Arch. f. Psych.,' iii, 751) gives the post-mortem appearances found in the brains of two aphasics. He concludes with the assertion that it is impossible at present to localise the centre of speech, and idle to discuss the possibility of its unilateral seat.

Hammond ('New York Med. Rec.,' vi, 1) defines aphasia as "a condition produced by an affection of the brain by which the idea of language, or of its expression, is impaired." He then gives a brief summary of the literary history of the affection, from 1798, when

Crichton described it, to the latest period. He rejects the theories of Dax and Broca, and believes "that the organ of language is situated in both hemispheres, and in that part which is nourished by the middle cerebral artery; and that while the more frequent occurrence of right hemiplegia, in connection with aphasia, is in great part the result of the anatomical arrangement of the arteries, which favours embolism on that side, there is strong evidence to show that the left side of the brain is more intimately connected with the faculty of speech than the right." Histories of fourteen cases of aphasia, which had come under his observation, follow; and from these he concludes that in all of which hemiplegia formed a feature, the aphasia was of the ataxic form, while when there was no hemiplegia, the aphasia was amnesic. In the one the individual was deprived of speech, because he could not co-ordinate the muscles used in articulation; in the other, because he had lost the memory of words. He thinks that this point has not been noted before, and that the phenomena indicate very clearly the seat of the lesion and the physiology of the parts involved. When the grey matter of the lobes, which presides over the *idea* of language and hence over the memory of words, is alone involved, there is no hemiplegia, and no difficulty of articulation. If the corpus striatum, or some other part of the motor tract is attacked, the lesion is followed by hemiplegia and ataxic aphasia; and if amnesic aphasia is also present, the hemisphere is likewise involved.

Bristowe ('Path. Soc. Trans.,' xxiii, 21) records the case of a woman, æt. 48, in whom the left corpus striatum with the brain substance between it and the island of Reil was entirely destroyed by a clot. During life she had complete motor hemiplegia, temporary aphemia, and slight amnesia.

Baginsky ('Berl. Klin. Woch.,' 1871, 428) records two cases of aphasia, in men æt. respectively 42 and 40, in consequence of disease of the kidneys, and discusses at some length the relation of the two diseases, and especially the anatomical seats of the aphasic lesion.

Simon ('Casuistische Beiträge zur Lehre von der Aphasie,' ib., 537) writes a very interesting paper with cases of the affection. He allows that the lesion is to be found in the third frontal convolution, though not always on the left side, and thinks that the faculty of speech probably resides in both, though we are in the habit of using only the left. His last case is that of a man who was thrown with his horse, and, attempting to get into his saddle again, was found to have complete aphasia, and a small wound in the head. Death followed later from meningitis, and a splinter of bone was found impinging on the third left convolution, with softening of this end of the third convolution, and the island of Reil.

Hughlings Jackson ('Lancet,' 1872, i, 72) gives a minute report of the case of a healthy girl, æt. 17, in whom a right-sided convulsion was followed by defect of speech, from which she recovered. The convulsions did not resemble those which occur in hysterical women, and was like those occurring in brain disease; and he infers that there must have been some pathological process, as yet unknown, in the region of the corpus striatum.

The same author (ib., 1871, ii, 430) reports two cases of the power of singing existing in two aphasic boys of the ages of ten and eight years.

Bacon (ib., 488) reports the case of an idiot boy, æt. 12, with strong family history of physical degeneration, who, scarcely able to use a single word, has a certain capacity of humming tunes.

Down (ib., 1871, i, 852) records the case of a man æt. 28, who had right-sided hemiplegia, with unaffected speech, and an aortic obstructive murmur. A week later he became speechless, and two days afterwards died. The autopsy showed, in addition to the aortic disease, a softened cavity of irregular shape, and of about the size of a hazel nut, in the anterior lobe of the left side of the brain.

Nicol, "Shfting and Recurring partial Hemiplegia in a Patient suffering from Bright's Disease" (man, æt. 30), 'Lancet,' 1871, ii, 397. Ogle, "Case of Epilepsy and Hemiplegia, probably syphilitic" (woman, æt. 33), ib., 540. Id., "Hemiplegia, probably from softening of Embolic Origin" (woman, æt. 45), ib., ib. Clark, "Peripheral Hemiplegia" (man, æt. 30), ib., 1872, i, 254. Owen, "Epileptic Hemiplegia" (girl, æt. 17), ib., ib., ii, 744. Heaton, "Alternating Hemiplegia, with Clinical Remarks," 'Brit. Med. Journ.,' 1871, ii, 498. H. Jackson, "Hemiplegia in Patients the subjects of Congenital Syphilis," ib., 1872, i, 526.3 Bristowe, "Reflex (?) Hemiplegia," ib., ib., 610. Lockhart Clarke, "Incomplete Hemiplegia of the Right Side with partial Aphasia," ib., ib., 638. Ogle, "On Dextral Preeminence," 'Med.-Chir. Trans.,' liv, 279. Wrany, "Hemiplegie und Aphasie mit Hemichorea in Folge von Endocarditis," Oesterr, 'Jahrb. f. Pædiatrik,' 1872, i, 12 (see under Dis. of Circulation). Greenhow, "Plugging of the Left Anterior and Right Middle Cerebral Arteries, Extensive Disease of the Frontal Lobe of the Left Hemisphere, and Softening of a Patch of Cerebral Substance in the Centre of the Right Hemisphere of the Brain, aortic valves incompetent and studded with fibrinous vegetations, mitral stenosis, aphasia. Hemiplegia, first of Right and subsequently of Left Side" (female, æt. 27), 'Path. Soc. Trans.,' xxiii, 18. Robertson, "Observation on Aphasia, with Cases," 'Glas. Med. Journ.,' iii, 229. Anderson, "Clinical Memoranda," No. 1 (case of aphasia with right hemiplegia, recovery), ib., iii, 446. Obernier showed a patient suffering from aphasia, 'Berl. Klin. Woch.,' 1871, 321. Sharpe, "Case of Amnemonic Aphasia," 'Amer. Journ. Med. Sci.,' lxi, 589. Druitt, "Clinical Notes of the Varieties of Imperfect Speech produced by Brain Disease," 'Med. Times and Gaz.,' 1871, i, 34. Lush, "Well-marked Aphasia without Paralysis, recovery," ib., ii, 523. Dalton, "On Aphasia" (discussion of Hammond's paper), 'New York Med. Rec.,' vi, 19. Proust, "De l'Aphasie," 'Arch. Génér. de Méd.,' xix, 147. Glover, "Uncomplicated Aphasia," 'Brit. Med. Journ.,' 1871, ii, 684. H. Jackson, "Voluntary and Automatic Movements," ib., ib., 641. McCarthy, "Fracture of the Skull in Broca's Region, Paralysis of the Right Side, loss of power of speech, death, autopsy" (clot occupying portion of frontal lobe, corresponding to the interior and posterior part of the frontal convolutions, and very closely bordering on the central lobe, diseased blood-vessels), 'Lancet,' 1872, ii, 706.

Hyperæsthesia and Neuralgia.

Anstie, "Neuralgia and the diseases that resemble it," London, 1871. Althaus, "On Neuritis of the Brachial Plexus," 'Med.-Chir. Trans.,' liv, 145. Chapman, "Observations on Dr. C. B. Radcliffe's Theory of the Genesis of Pain," 'Med. Times and Gaz.,' 1871, ii, 765. Anstie, "On the Pathological and Therapeutical Relations of Asthma, Angina Pectoris, and Gastralgia," 'Brit. Med. Journ.,' 1871, ii, 550. Id., "A Case of Neuralgia of all Three Branches of the Fifth Nerve," ib., ib., 684. Handfield Jones, "Clinical Lecture on Hyperæsthesia," ib., ib., 369. Holden, "Some Notes on Neuralgia and its Treatment," ib., i, 639. Smith, "Galvanism in Neuralgia," ib., 1872, i, 139. Wilks, "On Sick Headache," ib., ib., 8. "Report on the Treatment of Sick Headache," ib., 12, &c. Chapman, "The Pathology and Treatment of Neuralgia and its Kindred Disorders," 'Lancet,' 1872, i, 151. Porcher,

"Contributions to the Clinical History of Hyperæsthesia," 'Amer. Journ. Med. Sci.,' lxi, 105. Cleborne, "Headache," 'New York Med. Rec.,' vi, 309. Meiere, "Treatment of Sciatica," ib., 175. Nothnagel, "Schmerz und cutane Sensibilitäts-Störungen," 'Virch. Arch.,' liv., 121. Peter, Névralgie Diaphragmatique et faits Morbides Connexes," 'Arch. Gén. de Méd., xvii, 303. Sorbets, "Deux cas de Névralgie Cervico-brachiale Nocturne, 'Gaz. des Hôp.,' 1871, 566. Senne, "De la Migraine," 'Union Méd.,' xi, 423.

Meningitis; Hydrocephalus; Hæmorrhage.

A writer in the 'Gaz. Méd.' (1871, 412, &c.), on the treatment and prophylaxis of tubercular meningitis, says that in a practice of thirty years he has seen between eighty and ninety cases, and in that time counts two as recovering from the confirmed disease.

Fleming ('Brit. Med. Journ.,' 1871, 443) thinks he had to deal with a case of unequivocal tubercular meningitis in a girl æt. 2½, recovery from which may have been due to the use of iodide of potassium.

MacSwiney (ib., 1872, 539) exhibited a specimen showing tubercle over the projecting portions of the cerebral convolutions, taken from a boy, æt. 15, who five weeks before had become suddenly incoherent. An epileptiform convulsion followed in a few minutes, and occurred again ten days later. There was dull, persistent pain in the head, general anæsthesia, a quick pulse, and sluggish, dilated pupils.

Sperling ('Centralb.,' 1871, 448) has made injections between the dura mater and the arachnoid over the convexity of the brain in rabbits with the following results:—Eight days after the injection of fresh blood it began to be organized into a connective-tissue membrane, which was complete after two to three weeks. After the latter period new blood-vessels were found in the new membrane, which agreed in all characters with the membrane of pachymeningitis. The organization of the blood occurred over the convexity of the brain, on the inner surface of the dura mater, without any adhesions to the arachnoid. The formation of the new membrane was due to the organization of the fibrin contained in the blood. That this was so was shown by the fact no new formation was found after the injection of defibrinated blood, which was completely reabsorbed. Injections of iodine and other irritating fluids was not followed by any new formation. In some cases the dura mater was found thickened, in others there was pus.

Arndt ('Virch. Arch.,' lii, 42) records two cases of so-called hydrocephalus externus, due to the accumulation of serum between the dura mater and the arachnoid. This accumulation was the result of "chronic internal pachymeningitis," causing the formation of thick and tough false membranes, which bound down the dura mater. This affection is not to be confounded with Hygroma of the dura mater.

Thompson ('Brit. Med. Journ.,' 1871, ii, 154) records the occurrence of intracranial osteophytes in a servant girl, æt. 23, with dilatation of the ventricles and increased fluid, amounting to seven ounces, and softening of the white substance. No tubercles were present anywhere.

Bierbaum, "Pathologische Physiologie der Meningitis Tuberculosa," 'Deut. Klin.,' 1871, 261. Id., Semiotisch-diagnostische Analyse der Erscheinungen bei der Meningitis tuberculosa," 'Journ. f. Kinderkr.,' lvi. 324. Neureutter, "Fractura Cranii Sanata, Pachymeningitis interna chronica, Hydrocephalus und Tuberculosis

bei einem 1½ Jahre alten Knaben," 'Oesterr. Jahrb. f. Pædiatrik,' 1872, i, 123. Broadbent, "Cases of Acute Cerebral Disease, with Autopsies" (1, Sero-purulent effusion into ventricles of brain, obscure symptoms; 2, Basic tubercular meningitis), 'Med. Times and Gaz.,' 1871, ii, 376. Heller, "Ein Fall von Hydrocephalus Externus," 'Deut. Arch.,' x, 207. Gant, "Case of Apoplexy Treated by Venesection," 'Lancet, 1871, ii, 577. Hughlings Jackson, "Remarks on the Difficulties in the Diagnosis of the Causes of Apoplexy," ib., 1872, i, 505. Whitcombe, "Meningeal Apoplexy" (male, æt. 51), 'Brit. Med. Journ.,' 1872, i, 27. Foot, "Apoplexy, Extravasation of Blood at the Base of the Brain, Cylindroid Aneurism of Fourth Stage of Vertebral Artery (male, æt. 60), ib., ib., 424. Rittmann, "Die Vorläufer der Apoplexie und Syncope," 'Wien. Med. Ztg.,' 1871, 60. Stillé, "Simple Acute Meningitis" (man with chronic tubercular phthisis, death from coma and collapse, no tubercles, only injection of meninges, with pus and lymph on pia mater of convexity of brain), 'Amer. Journ. Med. Sci.,' lxi, 419. Buttenwiesen, "Punction und Adspiration eines Chronischen Hydrocephalus mittelst der Spritze von Bresgen," 'Deut. Arch.,' x, 301. Schmid, "Zur Differentialdiagnose von Apoplexie und Embolie des Gehirns," ib., 305. Körber, "Des Cheyne-Stokes'sche Respirations-Phänomen bei einem an Meningitis Tuberculosa leidenden 9 Monatlichen Knaben" (no autopsy), ib., 600.

The Ophthalmoscope in Diseases of the Nervous System.

Bouchut ('Gaz. des Hôp.,' 1871, 97) gives the following as seen in cases of acute affection of the brain and spinal cord.

Optic hyperæmia and venous stases in the retina, coinciding with congestion of the meninges or thrombosis of the sinuses.

Optic neuritis, with or without exudation, the result of meningo-encephalitis.

Papillary œdema diagnostic of cerebral compression.

Tubercles of the choroid always accompanied by tubercles of the meninges or the viscera.

He gives three cases with autopsies:

1. Girl, æt. 2; tubercular meningitis and general tuberculosis; during life almost entire disappearance of the optic papilla, which presented a uniform red colouration masking its outline; dilatation of the retinal veins; no choroidal tubercle.

2. Girl, æt. 8; double optic neuritis and miliary tubercles of the choroid; general tuberculosis.

3. Girl, æt. 3: atrophy of both optic nerves, as seen with the ophthalmoscope; a tubercle (scrofulous tumour,—Rep.) of the cerebellum, the size of a hen's egg, and two the size of nuts, at the surface of the right cerebral hemisphere; enormous quantity of fluid in the lateral ventricles; no miliary tubercles anywhere.

Socin ("Beitrag zur Lehre von den Sehstörungen bei Meningitis;" 'Deut. Arch.,' viii, 476) records two cases, in a man, æt. 31, and a female, æt. 37, in whom, suffering with meningeal symptoms, the same sort of appearances in the optic disc were observed as in children with tubercular meningitis.

Broadbent ('Path. Soc. Trans.,' xxiii, 216) records a case of dropsy of the sheath of the optic nerve in meningitis. The patient, a girl, æt. 19, had complained of headache for a fortnight. She had vomited, lay in a state of torpor with her eyes half closed, the pupils large and sluggish, the right rather larger than the left. She had well-marked *taches cérébrales*. The optic discs were well defined, of a dusky pink

colour, striated by vessels, and had a white spot in the centre. The retinal veins were large, the arteries small. She died thirty-six hours after her admission. The autopsy showed turbid fluid with translucent granulations about the interpeduncular space; injection of the pia mater, optic commissure and tracts. The nerves presented large superficial vessels along their entire length. Close to the eyeball they swelled out into a kind of bulb, due to distension of the outer sheath of the optic nerve by fluid. There were no tubercles in any of the other organs.

Fränkel, "Weitere Beobachtung von Tuberkeln der Chorioidea" (girl, æt. 6, general miliary tuberculosis, tubercle observed in the choroid five months or so before death), 'Berl. Klin. Woch.,' 1872, 4. Manz, "Ueber Seh-nerven Erkrankung bei Gehirnleiden" (Hydrops vaginæ n. optic.), 'Deut. Arch.,' ix, 338. Hughlings Jackson, "Remarks on the Routine Use of the Ophthalmoscope in Brain Disease," 'Lancet,' 1872, ii, 525. Bouchut, "Du Diagnostic de l'Hydrocéphalie par l'Ophthalmoscope," 'Gaz. des Hôp.,' 1872, 345.

Abscess of the Brain; Softening; Embolism; Tumours.

Taylor ('Brit. Med. Journ.,' 1871, ii, 527) found the left vertebral artery completely filled by an embolic clot, in a man æt. 68, who two months before his death had fallen so as to injure his chest. He complained of numbness of the right arm and leg, but had perfect motion. He had also paralysis of the glosso-pharyngeal nerve.

Jastrowitz ('Arch. f. Psych.,' ii, 389, and iii, 162) has studied the hereditary character of nervous diseases, taking as his starting-point the occurrence, pointed out by Virchow, of a diffuse encephalitis in newborn children. In the two years preceding his article he examined the brains of a large number of children who had died with head symptoms (tetanus, trismus, &c.). The result in all the cases showed an encephalitis agreeing completely with Virchow's description; hyperæmia of the meninges and white substance, comparative paleness of the cortical substance, whitish-yellow spots in the white substance corresponding to places in which the fatty change was most advanced in the cells of the neuroglia. He gives a full account of the changes found; the spinal cord was scarcely, if at all, affected. To decide the question whether this so-called encephalitis was a pathological condition, he then examined the brains of apparently healthy newborn children, who had died from other causes. Of 80 which he examined, 7 were fœtuses of five to seven months, 37 children from that period to the age of one (extra-uterine) week; 12 from one week to five months; 4 from five to nine months; 5 from nine months to three years. All the 37 children presented the changes described in the brain. In fœtuses the fatty degeneration of the cerebral substance was general; in children it was partial. The first child that presented no change in its brain was five months old. From these and further premises, for the study of which the original article must be referred to, he concludes that this fatty metamorphosis in the brain is a normal process, consisting in changes in the young cells of the neuroglia. He discusses at some length the etiology of the affection.

Elam ('Lancet,' 1871, i, 747) gives a table of the chief differences

between general and partial acute idiopathic cerebritis. He considers the diagnosis of the disease not difficult. It differs from the apoplectic form of softening, in the absence of aphasia and paralysis, as well as other general features of progress; from the convulsive form, in the absence of epileptiform attacks at the beginning, and the greater constancy and duration of the convulsions when they do occur; from the delirious form, by the mode of invasion which is never by delirium, and by the less marked character of this symptom throughout.

Fleischmann ('Wien. Med. Woch.,' 1871, No. 6, &c.) records a case of cerebral tubercle in a boy æt. 2 years. The tubercle had commenced in the left thalamus, as a hard, rough, cheesy mass, which extended into the left cerebral crus; here it had completely destroyed the fibres of the inner surface. The symptoms were exactly those described by Afanasieff (ibid., 1870, No. 9) in section of one cerebral crus. They were partial paralysis of the left oculo-motor nerve; dilatation of the pupil, which was unaffected by light; paralysis of some of the facial muscles of the trunk and extremities of the right side; tremor of the right hand; increased cutaneous sensibility of the right side, with the exception of the head; ophthalmia; hyperæmia of the retina, choroid, and optic disc of the left eye; incapacity of retaining stools or urine; abnormal fluctuations in temperature.

Cordier ('Lyon Méd.,' viii, 583) records the case of a boy of 12, suffering from caries of the ribs and empyema, in whom three quarters of the left cerebellar lobe had been destroyed by a "tuberculous" (*i. e.* "scrofulous,"—Rep.) tumour, without giving rise to any symptoms.

Hughlings Jackson ('Brit. Med. Journ.,' 1871, ii, 528) publishes a case of tumour of the middle lobe of the cerebellum in a boy æt. 5. The tumour was a "tuberculous" one, of the size of a billiard ball. The diagnosis was grounded on (1) the enlargement of the head, without any evidence of rickets; (2) blindness (double optic neuritis); and (3) a reeling gait. Perhaps of the three the last was of most value, though by itself it would only point to a tumour under the tentorium. From time to time the boy had convulsive seizures of a tonic character, during which he was conscious.

Broadbent ('Brit. Med. Journ.,' 1872, i, 476, 622) related to the Clinical Society the history of two cases, in one of which there were two tumours just beneath the floor of the fourth ventricle, near the median line—one in the lower half of the pons, the other near the lower end of the ventricle. The patient was a man æt. 46, whose symptoms during life were slight weakness of the right limbs, marked paralysis of the left side of the face, not involving the orbicularis oculi; lateral deviation of both eyes to the right, with double loss ef vision; loss of sensation over the area of the right trigeminus; difficulty of deglutition and indistinct articulation. In the second case, a man æt. 65, gliomatous tumours were found in the occipital lobe, and in the posterior ascending parietal convolution of the right hemisphere. He had convulsion and paralysis of the left half of the body.

Hutchinson (ibid., 185) writes on a case of supposed cerebral tumour in a man æt. 27, alive at the time of writing.

Evans (ibid., 1872, i, 366) refers to the occurrence of an hydatid cyst protruding from the under surface of the cerebellum in a boy æt. 17, who in addition to rheumatic endocarditis had headache, dimness of vision, and a staggering gait.

Pullar (ibid., 312) records a case of the same kind in a girl æt. 4. The cyst, the size of a pigeon's egg, lay upon the crus cerebelli of the left side. She had periodical headache, tremors of the limbs, and later was in a semi-unconscious state, from which she was easily roused. (And see this Report, under "Animal Parasites.")

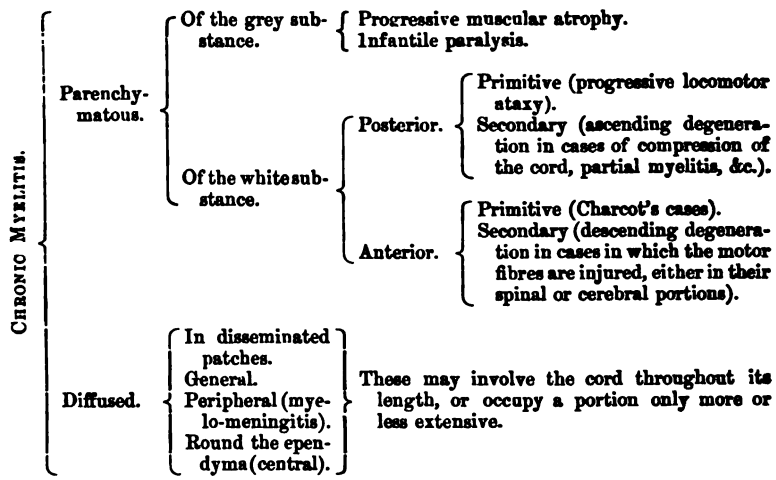
Janeway and Teakle ('New York Med. Record,' vi, 403) give a description of tumours attached to the dura mater.

Edes ('Amer. Journ. of Med. Sci.,' lxi, 87) gives three cases of morbid growth connected with the nervous system, all occurring in women, whose ages respectively were 83, 60, and 71. In the first there was a gliomatous tumour of the cerebrum; in the second a round-celled sarcoma of the cerebellum; and in the third there was sarcoma of the semilunar ganglion of the sympathetic, varying in character from a cellular to a fibrous structure.

Reynaud, "Accidents Cérébraux Survenus Consécutivement à une Tumeur blanche Cervicale, mort et autopsie" (boy, æt. 17), 'Lyon Méd.,' viii, 265. Fagge, "Embolism of the Left Middle Cerebral Artery of more than six weeks' standing, yellow induration of the corpus striatum, with surrounding white softening" (woman, æt. 25, right hemiplegia with aphasia), 'Path. Soc. Trans.,' xxii, 13. King, "Aneurism of the Aorta associated with Fracture of the First Rib, and Embolism of Middle Cerebral Artery," ib., xxiii, 70. Haslewood, "A Case of Disease of Right Internal Ear, and resulting Abscess in the Brain" (male, æt. 40), 'Lancet,' 1872, i. Broadbent, "Disease of Temporal Bone, abscess in temporo-sphenoidal lobe of brain opening into ventricle, prolonged suppuration in ventricles," 'Med. Times and Gaz.,' 1871, ii, 377. Draper "Abcess of Brain, Aphasia," 'New York Med. Gaz.,' July, 1871, 76. Blanquique, 'Tumeur de la Glande Pinéale, épanchement abondant, hernies du cerveau à travers la dure mère," 'Gaz. Hebd.,' viii, 532. Broadbent, "Tumour in Left Half of Floor of Fourth Ventricle, with Tumour in Cerebellum" (gliomatous, girl, æt. 2), 'Brit. Med. Journ.,' 1871, ii, 710. Wilkinson, "Malignant Disease (glioma) of the Eye, Brain, and Cranium" (boy, æt. 2½), 'Trans. Path. Soc.,' xxiii, 220. Arnott, "Scrofulous Tumours in Brain and Testicle, from a case in which the elbow-joint had been excised two years previously," ib., 5. Hawkes, "Case of Tumour of the Brain, apparently of the Nature of Encephaloid Cancer," ib., 32. Stocks, "Tumour of Brain" (medullary, man, æt. 22), 'Brit. Med. Journ.,' 1872, i, 137. Thomas, "Cerebral Tumour" (degenerated dermoid cyst ?), ib., ib., 457. Lydall, "A Case of Bony Tumour in the Substance of the Brain" (woman, æt. 56), 'Lancet,' 1872, ii, 524. Manning, "Two Cases of Medullary Cancer of the Brain" (men, æt. 60 and 50, with autopsies), ib., 1871, ii, 321. Deane, "Case of Ossific Deposit under the Dura Mater (man, æt. 22, autopsy), ib., 1872, i, 147.

Spinal Affections.

Hallopeau ("Etude sur les Myélitis Chroniques diffuses," 'Arch. Gén. de Med.,' xviii, 277, &c., xix, 60, &c.,) gives the following classification of the different forms of chronic myelitis. It is scarcely possible to abstract the article with justice.



With Vulpian he considers the first stage to be irritation and inflammation of the nerve-elements, *e. g.* the nerve-tubes in tabes dorsalis, the spinal ganglion-cells in muscular atrophy. The greater number of patients affected with diffuse myelitis are persons under the age of 40. Exposure to cold, and paralysis of muscles from over-use and over-fatigue, are frequent causes; others are wounds, alcoholism, syphilis, tumours, severe fevers, the puerperal state, malaria, caries of the vertebræ, inflammation of the meninges, and parenchymatous scleroses. Diffuse myelitis is constantly found in paralysis of the insane, and it has been observed in chorea and in tetanus. It is almost always partial at its first commencement, and spreads gradually. The parts where the inflammation takes place are swollen, the meninges injected and thickened; the medullary tissue at first softened, then hard and shrivelled, containing abnormal spaces, generally filled with serous fluid. The interstitial myelitis is essentially characterised by the proliferation of the cells and nuclei of the neuroglia. The inflammation in central myelitis is accompanied by proliferation of the cellular elements of the central canal. The roots of the nerves, especially the anterior ones, are often found atrophied; more rarely there has been observed a true sclerosis of the peripheral nerves (hyperplasia of the connective tissue with atrophy of the nerve-fibres). In cases where the grey substance is affected the muscles are atrophied. These changes in the latter in connection with diffuse myelitis have for twenty years been described by Duchenne as "general spinal paralysis." Generally the affection begins suddenly with pains in the dorsal region, from which they extend to the limbs and thoracic walls, presenting at times exacerbations, cramps, and peripheric contractions. Sometimes, however, these pains are absent. A remarkable irregularity is shown by the malady in its evolution, with alternations of amelioration and aggravation. Two forms, descending and ascending, may be distinguished according to whether the upper or lower extremities are first paralysed, though no law can be laid down

as to the order of succession in the attacked limbs. Electrical contractility is diminished or abolished in the affected muscles, very soon after the onset of the paralysis, and they are usually the seat of the same fibrillar contractions observed in progressive muscular atrophy. After the general sketch of the disease, he proceeds to discuss the different varieties of it, and its diagnosis, giving some cases in illustration. The article concludes at last (xix, 191) with its treatment.

Charcot ("Des troubles trophiques musculaires consecutifs aux lésions de la moelle épinière et du bulbe rachidien," 'Gaz. des Hop.,' 1871, 458) divides irritative spinal lesions into two groups. In the first, the nutrition of the muscles is not directly modified; and the pathological change is limited to the white substance, or, at most, to the region of the anterior horns, leaving the multipolar cells untouched. This is the case in a more or less degree in the different forms of sclerosis. The second group comprehends the affections of the spinal cord in which the nutrition of the muscles is affected to a greater or less extent. This group is again subdivided. The first division contains those affections which occur as deposits, or diffused, acute or subacute, of both white and grey substance, but especially of the latter. They are usually followed by profound disturbance of the electrical contractility, and rapid muscular atrophy; as seen in acute myelitis, in spinal apoplexy, and in certain cases of fracture and dislocation of the vertebral column, which produce irritation of the cord, partial at first, but having a tendency to become general. In the second subdivision the lesions are limited to the grey substance of the anterior horns, where they are very circumscribed to oval patches of motor cells. Here the neuroglia is more opaque and thickened (inflamed), and the nerve-cells are in different degrees of atrophy. The latter are the starting-point of the lesion. *Infantile spinal paralysis* (ib., 465) is the most perfect type of this subdivision; and it is very probable that in this disease a subacute process of irritation attacks all at once a large number of nerve-cells, and deprives them suddenly of their motor functions. *Progressive muscular atrophy* presents the chronic and gradual form of the same change. He recognises two forms of the affection; one, protopathic, in which the nerve-cell tissue is primary; the other symptomatic, in which it is secondary, the former causing a much more fatal prognosis. The *spinal paralysis of adults* and *general spinal paralysis* (Duchenne), the pathology of which is less known, are probably due to the same kind of change in the *motor nerve-cells*.

As to muscular lesions resulting from affections of the medulla oblongata, but little work has been done. Still, judging from labio-laryngeal paralysis, &c., it is probable that the motor ganglia of the floor of the fourth ventricle are the seats of change.

Bourneville, "Hémorrhagie de la Moëlle Épiniere," 'Gaz. Med.,' 1871, No. 40. Peter, "Méningo-myélite," 'Gaz. des Hôp.,' 1871, 461. Clément, "Amyotropie Secondaire" (case of a man, not dead, with symptoms of what Jaccoud describes as "Progressive nervous atrophy," but which the author refers to acute spinal meningitis), 'Lyon Méd.,' viii, 504. Tibbits, "Case of Myelitis" (man, æt. 22, autopsy), 'Med. Times and Gaz.,' 1871, i, 537. Frommann, "Ein Fall von Wirbelcaries und Degeneration des Rückenmarks" (man, æt. 58, with autopsy and plate), 'Virch. Arch.,'

liv, 42. Westphal, "Ueber ein Eigenthumliches Verhalten Secundärer Degeneration des Rückenmarks" (with plate), 'Arch. f. Psych.,' ii, 374. Schüle, "Weiterer Beitrag zur Hirn-Rückenmarks-Sclerose," 'Deut. Arch.,' viii, 223. Kelp, "Hirnsklerose," ib., x, 224. Buchwald, "Ueber Multiple Sklerose des Hirns und Rückenmarks," ib., 478. Otto, "Casuistischer Beitrag zu Multiplen Sklerose des Hirns und Rückenmarks," ib., 531. Ebstein, "Sclerosis Medullæ Spinalis et oblongatæ als Sectionsbefund bei einen Falle von Sprach- und Coordinationsstörung in Armen und Beinen in Folge von Typhus Abdominalis," ib., 595.

Infantile Paralysis.

Damaschino and Roger ('Gaz. Méd.,' 1871, 457) commence their long paper by tracing the history of the affection and the suggestions made by different authors as to its cause. Heine (1840) and Duchenne (1855) referred its origin to the spinal cord, though they had no pathological evidence of disease in the latter. Bouchut placed the anatomical seat of the lesion in the muscles, and the disease among the muscular paralyses (myogéniques). Cornil in 1863, and with Laborde in the following year, gave the result of their anatomical investigations, and the later writer recorded a second case also; their example was followed by Prévost and Vulpian in 1865, Olivier in 1869, Charcot and Joffroy in 1870, and in this last year also Parrot and Joffroy. Damaschino and Roger themselves had opportunities of a full examination of three cases in 1868, 1869, and 1871, of which they now give full reports. The first case was that of a boy aged two years, who for two months had suffered with paralysis of the left arm with atrophy of the deltoid—a consequence of hemiplegia occurring after dysentery. Paraplegia set in during measles, of which last affection the child died. The second case was observed in a boy æt. 2½ years, who for six months had had paraplegia, with atrophy and deformity of the left leg, less marked in the right. He also died of measles. The third case was that of a boy of 3 years, who had paraplegia and paralysis of the muscles of the left back for thirteen months before he died of broncho-pneumonia. The symptoms during life and the pathological appearances were similar in all three cases. The changes in the muscles were of the ordinary character, consisting of fatty and fibroid degeneration of the fibrillæ. In the spinal cord the writers found the same lesions of the grey substance and the anterior and lateral columns, differing, in the three cases, only in its seat; in the first case, in two places, the cervical and lumbar enlargements; in the second, chiefly in the latter position; and in the third case, in the same region, but on both sides. The microscope revealed changes in the vessels, thickened walls, proliferation of their nuclei, atrophy of the ganglion-cells and their processes, as well as of the nerve-fibres. There was also thickening of the connective tissue (sclerosis), especially marked in the third case. These facts lead the authors (ib., 578) to the conclusions that the lesion of the spinal cord is essential and primary, and that the pathological appearances found justify their use of the term "spinal infantile paralysis" ("paralysie spinale de l'enfance"). The lesion they consider to be a myelitis, especially of the anterior grey substance, of which the atrophy of the nerves and muscles is the consequence.

Rinecker ('Berl. Klin. Woch.,' 1871, 627) gives the autopsies of two cases, which differ but little from the preceding. In the second of the two the anterior and lateral columns, as well as the nerve fibres and ganglia, were atrophied, and in both the peripheral nerves.

Rosenthal ('Centralbl.,' 1872, 176, quoted from 'Oestr. Zeitschr. f. prakt. Heilkunde,' 1871, No. 52) contributes a paper towards the clinical and anatomical knowledge of spinal infantile paralysis. French writers (cf. 'Centralbl.,' 1870, 540) had especially called attention to the atrophy and malformation of the anterior horns of the spinal cord in this affection. Rosenthal, instead of looking upon the atrophy of the nerve-cells as the primary cause, considers the dilatation and thickening of the vessels, which he has observed, and which are the signs of an active participation of the latter, as a pathological process which results further in secondary growths and destruction of the grey substance. In opposition to Duchenne, Rosenthal finds that the motor power of paralysed muscles improves without any return of excitability by faradisation or galvanism. If within the first six or nine months from the commencement of the affection the electrical excitability be completely lost, the prognosis is not for that reason unfavourable.*

Hitzig u. Jürgensen, "Zur Therapie der Kinderlähmung," 'Deut. Arch.,' ix, 330. Barwell, "Infantile Paralysis and its resulting Deformities," 'Lancet,' 1872, i, 249, &c. Vulpian, "Anatomie Pathologique de la Paralysie Infantile," 'Gaz. Méd.,' 1872, 9. Ball, "De la Paralysie Infantile," 'Gaz. des Hôp.,' 1872, 185. Simon, "Eine besondere Form der Kinderlähmung durch encephalo-malacische Heerde," 'Virch. Arch.,' lii, 103.

Paralysis Agitans.

Murchison and Cayley ('Path. Soc. Trans.,' xxii, 24) give the details of a case of paralysis agitans, the spinal cord of which the latter examined, after hardening in chromic acid, and staining with carmine. 1. The cortical or connective tissue layer of the cord appeared thickened, and presented an increased number of nuclei. 2. Irregular tracts and patches of connective tissue, thickly nucleated, passed from the cortical layer into the substance of the cord, the reticulum of which was much thickened. These patches were most frequently met with near the exit of the posterior roots of the nerves, which themselves did not appear altered. 3. The place of the central canal was an oval tract, crowded with cells of various shapes and sizes, the majority having the character of leucocytes, none presenting the character of the normal epithelium of the canal. This oval tract occupied not only the site of the canal itself, but also that of the surrounding central substantia gelatinosa. 4. The capillaries of the grey matter, and to a less extent the white, were distended with blood; and here and there were small points of extravasation. 5. Through the whole cord, chiefly in the grey matter, were small deposits composed of leucocytes or exudation cells. The first three changes were due to a chronic, the last two to an acute, process.

Joffroy's account of the morbid changes in these cases ('Gaz. des

* In abstracting this paper Bernhardt remarks, "Damaschino also observed in two cases of essential infantile paralysis marked changes in the vessels of the anterior horns, and both he and Duchenne seem inclined to look upon these changes as the original affection" (cf. Duchenne, 'Elect. Local,' 1872, p. 409).

Hôp.,' 1871, 602) is very similar. In all there was proliferation of the epithelium completely filling up the central canal; great proliferation of nuclei in the neighbourhood of the ependyma; pigmentation of the nerve-cells, especially those of Clarke's columna vesiculosa; and a large quantity of amyloid corpuscles. In the third case there was a sclerotic patch of connective tissue in the neighbourhood of the pons with dilated vessels. The conclusion to which the writer comes is that the seat of the lesion in paralysis agitans is to be looked for in the cord. All three cases occurred in women.

Chvostek, "Encephalitis der Gebilde des r. Ammonshorns mit dem Ausgang in Sclerose, Paralysis agitans der linksseitiger Extremitäten" (man, æt. 44), 'Wien. Med. Woch.,' 1871, No. 37. Bastian, "A Case of Paralysis Agitans" (man, æt. 51), 'Brit. Med. Journ.,' 1871, ii, 698.

Locomotor Ataxy.

Greenhow and Cayley ('Path. Soc. Trans.,' xxii, 14) record a case of locomotor ataxy in a man æt. 57, with a microscopical examination of the cord, showing atrophy of the posterior columns.

Pollard, "Locomotor Ataxy, commencing suddenly, and disappearing under treatment, with remarks" (man, æt. 64), 'Lancet,' 1872, i, 431. Althaus, "On the Pain of Ataxy and its Relief," 'Brit. Med. Journ.,' 1871, i, 502. Spillmann, "Traitement de l'Ataxie Locomotrice," 'Gaz. Hebd.,' viii, 369.

Tetanus.

Clifford-Allbutt publishes ('Path. Soc. Trans.,' xxii, 27) short notes of four cases of tetanus, with an examination of the spinal cord in all. Lockhart Clarke and Dickinson report on the same specimen, and the pathological results are as follows:—1. Diminution of consistence of various degrees and situation in the cord. 2. Hæmorrhage in two of them, visible to the naked eye. On microscopical examination: 1. Great distension of the blood-vessels in both white and grey matter, with occasional exudation and disintegration of tissue around them. 2. Isolated patches of disintegration of various shapes and sizes in both grey and white matter; and in the grey matter, numerous vacuities having, on transverse section, circular or oval outlines, and resulting from disintegration of the nerve-fibres. Clifford-Allbutt strongly urges neurotomy as a remedial process in tetanus.

Joffroy ('Gaz. Med.,' 1871, 74) gives the microscopical examination of the cord, pons, nerves and muscles, from a case of traumatic tetanus.

Tetanus has been treated with injections of chloral hydrate of morphia by Aron ('Gaz. Hebd.,' vii, No. 34); by Demarquay with injections of morphia solution ('Bull. Gén. de Thérap.,' t. 81, 299; 'Gaz. des Hôp.,' 1871, 458); by Nankivell ('Med. Times and Gaz.,' 1871, i, 240), Miles ('Brit. Med. Journ.,' 1871, i, 278), Tyrrell ('Lancet,' 1871, i, 154), Lawrence (ib., 303), Croft (ib., ii, 636) and others, with chloral hydrate; by Foster (ib., i, 572) with this drug and nitrite of amyl; and by Fergusson ('Edin. Journ.,' xviii, 37) with chloral and bromide of potassium.

Kussmaul, "Ueber rheumatische Tetanus und rheumatische tonische Krämpfe, welche mit Albuminurie verlaufen," 'Berl. Klin. Woch.,' 1871, 458. Id., "Ueber eine Abortive Form des Tetanus," 'Deut. Arch.,' xi, i. Vogel, "Tetanus Rheumaticus mit Glykosurie," ib., x, 103. Kœnig, "Das Gesicht des Tetanischen, eine Klinische

Studie, 'Arch. d. Heilk,' xii, 549. Maccall, "Tetany," 'Glasg. Med. Journ.,' iii, 459. Black, "Notes of a Fatal Case of Tetanus Treated by the Calabar Bean," 'Brit. Med. Journ.,' 1871, i, 220. Dearden, "Notes of a Case of Idiopathic Tetanus, recovery" (man, æt. 25), 'Lancet,' 1872, i, 321.

Lead Poisoning.

Kussmaul and Maier ('Deut. Arch.,' ix, 233) give the following case:—A man, æt. 35, a house painter, had suffered for several years from chronic lead poisoning, showing itself in an anæmic (bluish-yellow) colour, emaciation, dyspnœa, constipation, and abdominal pain, and towards the end of life in attacks of colic, with dyspnœa and slow pulse. During the second attack, which ended fatally, and was accompanied by jaundice, he was constipated, and vomited matter richly tinged with bile; this was followed by profuse diarrhœa, and later by collapse. The temperature was only slightly above the normal at any time. He had no paralysis or brain-symptoms. The following is a summary of the appearances observed at the autopsy: general and great emaciation, marked rigor mortis of the muscles and heart nineteen hours after death; a certain amount of jaundice; great distension of the stomach; chronic catarrh of the mucous membrane of the stomach, intestines, and ductus choledochus; fatty degeneration of the glands of the stomach; slight fatty change of the muscular walls of the stomach, especially at the pylorus; atrophy of the mucous membrane of the jejunum, ileum, and upper part of the colon, in which both the stroma and glands shared; atrophy of the intestinal villi, the glands of Lieberkühn, the solitary glands, and Peyer's patches; marked development of the submucous tissue of the stomach, and even more so of that of the intestines, from proliferation of the areolar tissue, and thickening of the sheaths of the vessels; this was shown especially in the smaller arteries in the narrowing of their calibre, caused by the large amount of fat-cells deposited in the distended network of this layer; fatty degeneration of the muscles of the intestines, especially in the small intestine; pigmental degeneration (pigmental atrophy) of the muscular fibres of the heart. The brain, especially its cortical substance, showed slight periarteritis; there was proliferation and sclerosis of the connective-tissue septa of the small ganglia of the sympathetic, especially the cœliac and cervical; these glands were hard, the circulation in them affected, and their nerve-cell elements diminished. The authors consider that the changes found in the absorbent apparatus account for the chronic dyspepsia, the anæmic colour, and the malnutrition of the patient, and contrast their case, in its different bearings, with those recorded by Tanquerel des Planches and others.

Hollis ('Brit. Med. Journ.,' 1871, ii, 9) gives the case of a looking-glass silverer, æt. 26, in whom mercurial and chronic lead poisoning appear to have existed side by side. The origin of the lead is found in the tinfoil used in silvering.

Garrod ('Lancet,' 1872, i, 1), in a clinical lecture on lead poisoning, gives a remarkable case of the disease in a gentleman, the cause of which was traced to the presence in the snuff, which the patient took

largely, of particles of lead. He thinks that the mixture of the snuff containing certain of its soluble salts acts slowly on the lead case in which the snuff is packed. The patient had lived for many years in Calcutta, where other cases of the same kind had been observed.

Other papers on nervous diseases are—

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'Arch. f. Psych.,' iii, 433. Beck, "Spindle-celled Sarcoma connected with the Posterior Tibial Nerve," 'Trans. Path. Soc.,' xxii, 18. Emminghaus, "Ueber halbseitiger Gesichtsatrophie," 'Deut. Arch.,' xi, 96. Handfield Jones, "Epilepsy and other Nervous Affections resulting from the Excessive Use of Alcohol," 'Practitioner,' 1872, Feb. Wilks, "Alcoholic Paraplegia," 'Lancet,' 1872, i, 320. Lockhart Clarke, "Alcoholic Paresis and Paraplegia," ib., 427. Moxon, "A Case of Paraplegia lasting five years, electrical anæsthesia, question of malingering" (boy, æt. 18), ib., ii, 7. Benedikt, "Nekroscopischer Befund bei einem geheilten Fall von Paraplegie," 'Wien. Med. Woch.,' 1872, No. 1, &c. Gray, "Sudden Decrease in the Frequency of the Pulse during Disease as a sign of approaching Cerebral Complication," 'Brit. Med. Journ.,' 1871, ii, 94. Mitchell, "On the Growth of the Nails as a Prognostic Indication in Cerebral Paralysis" (two cases), 'Amer. Journ. Med. Sci.,' lxi, 420. Edes, "Morbid Growths connected with the Nervous System; Cerebrum, Cerebellum, and Semilunar Ganglion of the Sympathetic," ib., 87. Meade, "Extensive Deposit of Lymph on Serous Membranes (of brain in boy, æt. 6 years, with fractured parietal bone, &c.) in nineteen hours," 'Lancet,' 1871, ii, 13. Dowse, "Cerebro-spinal Arachnitis, with Cerebral Disturbance" (woman, æt. 25, autopsy), ib., 1872, ii, 9. Charpy, "De la Définition Anatomique et Physiologique de la Paralysie Générale," 'Lyon Méd.,' ix, 78. Howden, "An Analysis of the Post-mortem Appearances in 235 Insane Persons," 'Journ. Ment. Sci.,' 1871, 84. Wright, "Insanity Dependent on Constitutional Syphilis," 'Edin. Journ.,' xvii, 1095. West, "On some Disorders of the Nervous System in Childhood," 'Lumleian Lectures,' 1871. Tigri, "Sulle Anomalie e sulle Malattie del Cervello e parti annesse, come causa prossima della alienazione mentale; resultanze degli studi anatomici eseguiti nel corso di' 20 anni, publicati per guida del dissettore di queste necroscopie," 'Ann. Univ. di Med.,' ccxvi, 523. Roncati, "L'Arsenico contro le Malattie Nervose," 'Gaz. Med. Lomb.,' 1872, 9. Bailly, "Des Paralysies consécutives à quelques Maladies Aigues," 'Gaz. des Hôp.,' 1872, 93.

c. *Diseases of the Respiratory System.*

Œdema Glottidis, Laryngismus, &c.

Boelt ('Rec. de Mém de Méd. Mil.,' xxvi, 43) gives the following case:—A soldier, æt. 29, had two years before had an attack of dyspnœa, which lasted two hours, and was followed by œdema of the neck and face. On May 11, 1870, he had another suffocative attack. He had been revaccinated on the 4th; on the 10th his conjunctivæ were slightly injected, next day the dyspnœa commenced, with a feeling of difficulty in swallowing. There was considerable œdema of the velum, epiglottis, and aryteno-epiglottidean folds. The parts were scarified and sponged with a solution of nitrate of silver, with great relief. Later, œdema of the right hand and upper lip was succeeded by œdema of the right foot and lower lip. The symptoms disappeared, and the patient recovered. In the absence of any cause to be discovered in an affection of the heart or kidneys, Boelt ascribes the sudden occurrence of the œdema, which was unaccompanied by any symptoms of inflammation, to hyperæmia due to paralysis of the vascular branches of the sympathetic nerves.

Russell ('Glasg. Med. Journ.,' 1871, iii, 209) reproduces an already published case of laryngeal obstruction, preceded by erysipelas, in a woman æt. 21. Tracheotomy was performed, but the obstruction still exists and the patient still wears the canula. He gives a second case of the same kind, occurring in a female, æt. 18, attacked with typhus. Nothing abnormal was revealed by the laryngoscope about the epiglottis or vocal cords. The laryngeal obstruction became so severe that tracheotomy was performed, and the patient was relieved. Later, the obstruction still re-

maining, a laryngeal mirror was introduced through the opening in the trachea, and showed that the latter was closed below the rima glottidis by swelling of the mucous membrane. Introduced in the usual manner, the mirror showed the epiglottis erect, the cords widely separated, and a circular fleshy tumour with a dark central spot like that seen from below. He looks upon both as cases of laryngitis resulting in permanent stricture of the submucous tissue below the rima glottidis. In the second case there was undoubted constitutional syphilis.

Johnson ('Brit. Med. Journ.,' 1871, i. 469) arranges cases of spasm of the larynx in the following groups:—(1) Hysterical laryngismus; (2) laryngismus stridulus in children; (3) laryngeal spasm, due to pressure on the pneumogastric or recurrent nerves, by aneurism or other thoracic tumour; and (4) that produced by the presence of a foreign body, or the inhalation of irritating gases or dust, or by inflammation of the laryngeal mucous membrane. He gives the case of a girl, æt. [illegible], who suffered from the first cause. Chloral was prescribed in doses of ten grains every six hours, and the laryngeal stridor ceased. The aphonia which accompanied it yielded to galvanism.

Navratil ('Berl. Klin. Woch.,' 1871, 394) gives the result of his experiments on five dogs and a cat, as to the function of the laryngeal nerves. He finds that the superior laryngeal has no influence on the motor function of the larynx, and the spinal-accessory nerve none on the muscles of the vocal cords.

[illegible] "Laryngismus Stridulus," 'Dublin Journ.,' li. 117. Mackenzie, "On the Differential Diagnosis of Chronic Inflammations of the Larynx" (simple [illegible] laryngeal phthisis, syphilis, cancer of the larynx). 'Lancet,' [illegible] "On the Movement of Mucus in the Trachea and Larynx," ib., [illegible] Rogers, "Acute Laryngitis, Tracheotomy, Recovery" (in woman, [illegible] Mackenzie, "Constriction of the Trachea, Syphilitic Deposits [illegible] 'Path. Soc. Trans.,' xxii. 33. Norton, "Epithe- [illegible] ib., xviii. 43. Simpson, "Clinical Lectures on [illegible] Laryngoscope," 'Brit. Med. Journ.,' 1871, i. 415. Bergeret, "Traché- [illegible] Contribution à l'histoire des affections du larynx," 'Lyon Méd.,' [illegible] "Vortrage über Laryngoscopie," 'Wien. Med. Ztung.,' 1871, 359. [illegible] "Chloral-hydrat gegen Spasmus Glottidis," 'Jahrb. f. Kinderheilk.,' iv. 130.

Diphtheria and Croup.

[illegible] 'Berl. Klin. Woch.,' 1871, 18[illegible]) continues to insist upon [illegible] as the origin of diphtheria. After the entrance of [illegible] and lymph a secondary constitutional disorder, [illegible] generalis, is set up. The patients may [illegible] a febrile state may suddenly occur, with head- [illegible] apathy, constipation, with some tympa- [illegible] quantity, and often contains albumen [illegible] of the fungus [illegible] the lumbar region is [illegible] up to the age [illegible] consists in the use of a warm bath for a [illegible] applications of linseed-meal [illegible] a teaspoon or dessert-spoon of lime- [illegible] protracted cases quinine.

[illegible] he gives the results of [illegible]

further experiments, in continuation of his former papers on the production of diphtheria by specific spores. He fed rabbits of different ages on the cultivated fungi, so as to eliminate all diphtheritic exudation. The symptoms produced were loss of appetite, malaise, increasing inability to swallow fluids, elevation of temperature, diarrhœa, or, in the older animals, obstinate constipation and almost complete suppression of urine. The animals were killed, and the post-mortem appearances were, on the whole, as follows:—Hyperæmia of the stomach, ulcers in it and in the duodenum, which was covered with whitish masses; hyperæmic kidneys, and in some cases albuminous urine. Microscopic examination showed the presence of the peculiar spores and filaments in white masses, and in other parts, even among the glands of Lieberkühn, in the tubules and pelvis of the kidney, in the ureters, and in the urine. No symptoms followed the swallowing of penicillium glaucum, nor were its spores found in any of the organs examined. He concludes that, through the destruction of the mucous membrane openings are made into the blood-vessels, lymphatics, &c., by which portions of the fungus make their way into the circulation, setting up a general disorder, which has its special seat in the kidneys, where the spores and filaments are developed to an enormous extent. The same origin and course of symptoms and microscopical appearances he finds in the diphtheria of children. The latter name he would apply to the local affection of the fauces, and that of diphtheritis to the secondary symptoms. In reference to Grohe's experiments with other fungi, he believes that the peculiarity of the diphtheritic fungus is that, while other spores must be artificially injected to produce like symptoms, the former makes its own way through the tissues which it first destroys.

In a third paper ('Virch. Arch.,' lii, 493) he discusses the physiology of ciliated epithelium and the development of the exudation in croup and diphtheria. On mucous membranes with smooth epithelium the exudation is thick and closely adherent; on others with ciliated or cylindrical epithelium it is creamy and easily stripped off. He holds that croup and diphtheria are not identical, though they may be developed side by side, and may pass from one into the other.

Oertel ('Deut. Arch.,' viii, 242) writes an extremely full and very long paper on experiments made in reference to diphtheria. With the same view he makes use of several very instructive autopsies made on human bodies. According to him diphtheria causes constant capillary hæmorrhages, most numerous in the subepithelial and submucous tissues, next in the pleura, pericardium, diaphragm, dura mater, and in the capsules of the lymphatic glands, and again in the brain and spinal cord, in the sheaths of the nerves, and in the large organs. Micrococcus is developed and proliferates in the diseased mucous membrane and extends into the blood, into the neighbouring lymphatic glands, and over the whole body. 1. Ammonia and other chemical irritants set up a pseudo-membranous inflammation in the larynx and trachea. The writer made this experiment on fifteen rabbits, and caused an inflammation agreeing in all its symptoms with croup as it occurs in the human body, and becoming fatal through suffocation. There was no affection of the other organs.

The fungus was found on the surface of the membranes, but nowhere else, and inoculation with it gave negative results. 2. Inoculation in the trachea of twelve rabbits with diphtheritic membrane taken from men caused death in five by suffocation, in three by the constitutional infection. The post-mortem examination showed, not only diphtheritic inflammation in the larynx and trachea, but also numberless hæmorrhages in the most various organs, especially hæmorrhagic inflammation of the cervical and axillary glands, capillary ecchymosis, and degeneration of the muscles. The kidneys were swollen and livid, both cortical and medullary substances exceedingly hyperæmic, with ecchymosis here and there. 3. Inoculation with diphtheritic membrane under the skin and in the muscles, in five rabbits, gave the following results:—The wound was covered with grey slimy deposit, the muscles and connective tissue around and about it boggy and ecchymosed. The kidneys were highly hyperæmic and swollen. 4. Inoculations with decomposing animal substances gave altogether different results to those of diphtheritic membranes. 5. The diphtheritic poison introduced from men into animals, reproduced in them and increased, may be inoculated into other animals, even those of different zoological classes, and into different tissues and organs, with the same diphtheritis of the wound, and severe constitutional affection. Oertel concludes that the local disease begins in one spot of infection, and from it extends over the body. He insists upon a sharply marked separation between croup and diphtheria; the latter can provoke a croupous inflammation; the former never passes beyond the limits of a local inflammation.

Hartmann ('Virch. Arch.,' lii, 240) refers briefly to three views—(1) that croup and diphtheria are identical; (2) that the latter is only an advanced stage of the former; (3) that the two are distinct affections, the diphtheria being a blood disease, exhibiting its local effects in the fauces and larynx, just as the typhoid process is localised in the intestine. He holds that croup always precedes diphtheria (p. 246); that in the former the mucous membrane is intact, while in the latter it is destroyed.

Classen ('Virch. Arch.,' lii, 260) gives an analysis of 155 cases of diphtheria treated by him at Rostock, from October, 1862, to the end of March, 1870. Thirty-seven were fatal: 27 from suffocation, from extension of the affection to the respiratory organs, 2 from capillary bronchitis after tracheotomy (a third case of tracheotomy, in a child, recovered), and 8 from exhaustion or blood-poisoning. Thirty-eight were under the age of 10 years, 26 between 10 and 20, and 31 over 20 years. He considers the so-called false membranes to be only dead mucous tissue, and he has been unable to find any of Letzerich's spores, &c. He discusses at some length different modes of treatment, and publishes what he thinks a unique case of affected vision in a boy, æt. 15, after diphtheria, due probably to hæmorrhage into the sheath of the optic nerve.

Hutchinson ('Lancet,' 1871, i, 13) gives three cases of paralysis of the ciliary muscle from diphtheria. The cases are peculiar and easy of diagnosis, the patients generally children. The defect of sight, usually inability to read, comes on suddenly, always after convalescence has seemed to be established, and disappears in a month or six weeks.

Kraft-Ebing ('Deut. Arch.,' ix, 123) gives the following contribution to paralysis occurring after diphtheria. A man, æt. 30, suffering from the affection, was attacked in the course of a few days with a progressive paralysis gradually extending to all the extremities, leaving the bladder and rectum intact. The paralysis was accompanied by cutaneous and muscular anæsthesia. In the course of four or five months the symptoms disappeared. At the end of about twenty weeks the contractility of the muscles was lost to faradisation, but normal to galvanism. He looks upon the case as another proof of the peripheral origin of the paralysis in diphtheria. (Cf. Buhl, "Einiges über Diphtherie," 'Centralbl.,' 1871, 361.)

Güterbock ('Virch. Arch.,' lii, 523) records five cases of subcutaneous emphysema occurring in diphtheria without tracheotomy. He agrees completely with the views of Virchow as to the mode of its occurrence, and with Traube considers it a symptom of interlobular emphysema of the lung. It is rare, much rarer than that which takes place during or after tracheotomy. The five cases, like those given by Sachse, Bartels, and Hueter, terminated fatally; while in eight cases of emphysema of the skin after tracheotomy three recovered.

Kersey ('Brit. Med. Journ.,' 1871, i, 566) describes an outbreak of diphtheria (forty cases) in West Kent, without any apparent cause. Some cases occurred near the lesser Stour, others on ground nearly a hundred feet above, and a mile from the river. Four terminated fatally. One case is given at length, in which the membrane was extensive, albumen present in great amount, and there was paralysis of the pharynx and of accommodation, followed, during convalescence, by paralysis of the extremities and of the muscles of the neck and back.

Greenhow described to the Clinical Society (ib., i, 488) a case of diphtherial paralysis in a female, æt. 26, treated successfully with faradisation.

Underhill (ib., 323) exhibited five tracheæ on which tracheotomy had been performed for membranous croup in children, a thick layer being present in all. Tracheotomy does not seem to have been successful at the Children's Hospital, Birmingham, having been performed eight times between Sept. 1870 and Feb. 1871—twice for croup following scarlet fever, and once for diphtheria, once for œdema of the glottis following gangrene of the tonsils in enteric fever, and four times for membranous croup, in each case with fatal result.

G. Buchanan (ib., 217) holds that tracheotomy is admissible only in the sthenic form of these diseases, when other treatment has failed, and the tendency to death is from apnœa rather than exhaustion, and before the vital powers are lessened by the struggle for breath. A clear indication for the operation is a well-marked and increasing drawing-in of the costal cartilages and intercostal spaces, with a moderately good pulse. He gives, in full, a case in which the tube was removed on the eighth day, in a boy of six years and he adds a table (cf. ib., 310) of thirty-nine cases in which he performed tracheotomy—fourteen in croup, twenty-four in diphtheria, and one in which a chicken-bone had lodged in the glottis; twenty-six were fatal; nineteen of the operations were in children under four years, two of which were successful; and twenty

in children four years and over, eleven of which were successful; two thirds of the whole, therefore, were fatal.

Cooper Forster (ib., 309) records a case of successful tracheotomy in a child of eleven months for croup. [He adds a case in which he performed tracheotomy in a man, æt. 80, with malignant growth in the larynx.]

Bell gives (ib., 369) a successful case of tracheotomy in a child of seven months for croup.

Cordier ('Lyon Méd.,' ix, 92; and see discussion on this paper, ib., 105) gives three cases of diphtheria, two fatal, in boys æt. 7, and one in a girl, æt. 5, on whom tracheotomy was successfully performed, and the canula removed on the tenth day.

Olivier ('Gaz. des Hôp.,' 1871, 85) publishes two cases of croup; one was in a girl, æt. 7, in whom tracheotomy was performed *in extremis*, and the canula removed after seven days. The daily temperatures, &c., are given. The other was in a boy, æt. 4, who also recovered after tracheotomy, the canula being removed on the thirteenth day. In this case there was laryngeal paralysis.

As to other means of treatment in diphtheria, Schütz ('Wien. Med. Woch.,' 1871, No. 31) uses a solution of bromide of potassium with bromine (gr. vj to ʒiv) for pencilling the larynx and for inhalation.

Brasch ('Ber. Klin. Wochr,' 1871, 551) gives glycerine of iron internally and carbolic acid locally. Under this treatment the mortality was 20 per cent., while under the employment of nitrate of silver and mercurials it was 57 per cent.

Helfer ('Deut. Klin.,' 1871, 229) obtains good results from the use of carbolic acid.

Bouchut ('Gaz. des Hôp.,' 1871, 326) uses injections of a mixture of coal tar and tincture of saponine (*coaltar saponiné*), and induces the children to allow it by giving sugar water in the same syringe. He gives a case (ib., 582) where an emetic had good effect.

Laserre ('Bull. de l'Acad. de Méd.,' xxxv) found, when he was called in early enough, that keeping the patient in a warm bed and in a heated chamber, and the administration of diaphoretics, brought about successful results.

Bouchut ('Bull. de Thérap.,' lxxxiii, 373, and cf. lxxxii) records notes of five more cases treated by emetics (tartar emetic). In three of the cases tracheotomy was proposed, but either rejected or deferred; four cases recovered and one died from lobar pneumonia. The tartar emetic caused vomiting of the false membranes. The children were five years old or younger, and the medicine was given in doses of one to two grains, according to age, in two ounces of sugar-water. On days when it was not given as an emetic it was employed as a "counter-stimulant." A grain was dissolved in two ounces of water, and two teaspoonfuls given every two hours. Thick soup or bread soaked in water or sugared wine was the nourishment given, and but little drink, so as to prevent the purging effects of the tartar emetic.

Vaneschi, "Zur Frage über die Tracheotomie bei Laryngitis Diphtheritica," 'Berl. Klin. Woch.,' 1872, 163. Mühsam, "Ueber Diphtheritische Lähmungen," ib., 21. Roth, "Lymphatische Wucherungen nach Diphtheritis" (female, æt. 53, with

autopsy), 'Virch. Arch.,' liv, 254. Moos, "Ein Fall von selbständiger Diphtheritis des äusseren Gehörgangs" (boy, æt. 10), 'Arch. f. Aug.-u.-Ohrenheilk.,' 1871, 86. Schüller, "Primärer Croup der Nasenschleimhaut," 'Jahrb. f. Kinderheilk.,' iv, 331. Bouchut, "Traitement du Croup par l'Émetique," 'Gaz. des Hôp.,' 1872, 1. Cowan, "On the Medical Treatment of Diphtheria," 'Glasgow Med. Journ.,' iii, 219. Balfour, "Chlorine-water in the Treatment of Diphtheria." 'Edin. Med. Journ.,' xvii, 513. Menzies, "On an Epidemic of Diphtheria observed at Naples in 1871, with an attempt to determine the common origin of Cerebro-spinal Meningitis, Typhoid Fever, and Diphtheria," ib., xviii, 217. "Quinia in Croup," 'Amer. Journ. Med. Sci.,' lxi, 598. Murchison, "Case of Diphtheria, with extension of the Membrane to the Bronchial Tubes" (man, æt. 24), 'Path. Soc. Trans.,' xxii, 35. Savage, "Successful Case of Tracheotomy in Croup" (boy, 7, removal of the tube on eighth day), 'Brit. Med. Journ.,' 1871, i, 531. Greenhow, "Paralysis after Diphtheria" (man, æt. 32), ib., 1872, i, 538. Giacchi, Natura e Therapia dell' Angina Difterica, Poppi, 1872; pp. 23.

The Respiratory Murmur, &c.

Stone, in a valuable paper "On Ægophony" ('St. Thos. Hosp. Rep.,' 1871, 187), observes "that a pure musical vibration within the limits of the ordinary speaking voice is not transmitted at all, either through consolidated lung or through a layer of pleuritic fluid; but that the same note, when vocalised and modified by the addition of vowel sounds, immediately passes through the media at a changed pitch." He found that the E and I sounds, which Helmholtz obtained with great difficulty in his experiments, and only by reinforcing the extreme high harmonics at the expense of the fundamental notes, were exactly the sounds on which ægophony was most distinct, whether in a living lung or an india-rubber bag containing water. He concludes that ægophony has for its cause the fact "that the layer of fluid, while it stops the larger and coarser vibrations of the ground-tone, lets pass the finer and closer undulations of the high harmonics."

In reference to the peculiar mode of respiration first described by Cheyne, and later by Stokes, C. Brückner ('Virch. Arch.,' lii, 155) writes on what his father had taught twenty-two years ago as pendulum-like respiration. He notices it especially in children affected with tubercular meningitis. After the pause the patient breathes at first almost inaudibly, but with gradually increasing force, till the highest point is reached, the respiration gradually falling till the pause again recurs. The latter generally lasts as long as the sum of all the respirations between two pauses. The number of respirations varies in different patients, sometimes only 6—8, in others 20—30. According to the elder Brückner, the symptom is caused only by the presence of watery fluid within the skull, and the son has also noticed it in cases of the same kind only.

Merkel ('Deut. Arch.,' viii, 424) records a case in which the same phenomenon was present. The patient, a man, æt. 44, was first seen in the autumn of 1866, extremely anæmic, and suffering from hæmorrhoids. His arteries were rigid. At the end of 1869 he had an apoplectic fit, followed by left-sided paralysis. His respiration at that time was at first superficial, and increased in depth, but not in frequency, till it developed into a well-marked dyspnœa. This condition lasted for

30—45 seconds, and was succeeded by a complete pause of 20—30 seconds, during which the pupil was contracted and immovable, and again the same round of symptoms was repeated. He never lost consciousness. He was again seen in November, 1870; the peculiar respiration was still present, and a month later the patient died. The autopsy is given, but neither it nor the writer throw any further light on the cause of the phenomenon. The case is noticeable on account of the long period during which the peculiar form of respiration had lasted.

Waldenburg ("Die Manometrie der Lungen, oder Pneumatometrie als diagnostiche Methode," 'Berl. Klin. Woch.,' 1871, 541) describes a manometer to measure the pressure of inspiration and expiration in diseases of the lungs. The instrument proves what is already known, that in the normal state the pressure of expiration is stronger than that of inspiration, the former averaging between 70 and 180, or even 200 millimètres, the latter between 60 and 120. The average of the expiratory pressure in men is 80—120, of the inspiratory 70—100; in women the expiratory is 30—80, the inspiratory 40—90. In emphysema the inspiratory pressure is normal, the expiratory greatly diminished, this insufficiency of expiration depending on the lessened elasticity of the air-vesicles. On the other hand, in the early stages of tuberculosis the pressure of expiration is normal, while that of inspiration is abnormally low; in the later stages, however, the expiratory pressure is also diminished. These facts may be used in the differential diagnosis of disease. In cases of stricture of the trachea both pressures are diminished.

Körner ("Beitrag zur Lehre von der Tuberculose," 'Wien. Med. Ztung.,' 1871, 189) refers to the detrimental influence exerted by small development of the respiratory muscles of the neck upon the course of affections of the apices of the lungs. The defective inspiration leads to defective supply of arterial blood, and this, again, aids the cheesy degeneration of bronchitic or pneumonic products. He thinks that the fever which occurs during the process of cheesy change and softening is produced by the reabsorption of dead matter, and that it usually persists in proportion to the extent and density of the induration which surrounds the cheesy deposits and the vomicæ.

Brown-Séquard ('Lancet,' 1871, i, 6) gives the following results of his experiments on guinea-pigs, &c. Crushing or wound of the pons Variolii caused numerous ecchymoses, and even real apoplexy in the lungs, generally most marked on the side opposite to that of greatest lesion. The influence is exerted mainly through the spinal roots of the sympathetic nerve. Anæmia of the lungs, from spasm of the blood-vessels, also results from injury to the pons. Œdema of the lung appears principally after injury to the medulla oblongata. According to Ranvier, the parts of lung thus changed contain a good deal of serum, and the minute blood-vessels are filled with white, and free from red, corpuscles. He states as a new fact that emphysema of the lungs "can appear when not a single respiratory movement takes place, after an irritation of the base of the brain, either by crushing or cutting." He draws attention to the frequency of pulmonary changes dependent on brain-influence. Of 188 cases of organic disease of the brain, re-

corded by Calmeil, there was a morbid condition of the lungs, especially inflammation, in more than 60, *i. e.* in 1 out of 3.

Whitehead ('Trans. Path. Soc.,' xxii, 82) showed some peculiar sputa "hawked up" after eating by a woman, æt. 24. The sputum consisted of tenacious, gelatinous-looking masses, more or less elongated, of ragged outline, and non-tubular, and of delicate, transparent, membranous laminæ, varying in size from that of a minute flake to a square inch, and streaked with irregular reticulations. The microscope showed that both were almost entirely made up of stratified squamous epithelium, with a few mucous corpuscles. These characters favour the opinion that the specimen consisted of mucus yielded by a catarrhal condition of the pharynx or upper part of the œsophagus.

Baas, "Experimenteller Beitrag zu Aufklärung der Frage über den Entstehungsort und die Entstehungsart des sog. Vesiculär-Athmens und der Rasselgeräusche," 'Deut. Arch.,' ix, 316. Lippe, "Grenzen des normalen Bronchialathmens," ib., 525. Rehn, "Zwei Beobachtungen von Cheyne-Stokes'schen Respirations-phänomen bei Lungenaffectionen im kindlichen Alter," 'Jahrb. f. Kinderheilk.,' iv, 432. Leven, "Des diverses formes d'Asphyxie au point de vue physiologique et pathologique," 'Gaz. des Hôp.,' 1872, 68. Bourgeois, 'De la Congestion Pulmonaire simple,' Paris. Rohden, "Der Zweckmässigste Geradhalter," 'Berl. Klin. Woch.,' 1871, 236. Watts, 'Inhalation for Diseases of the Lungs,' London.

Mediastinal Growths.

Virchow ('Archiv,' liii, 444) describes a peculiar mediastinal tumour (Teratoma myomatodes). The patient, a man, æt. 22, had been under observation for about two months. He had been indisposed for some weeks, and complained of shortness of breath and pain in the right thorax. On percussion there was dulness from the third right rib downwards, extending in an oblique line backwards to the angle of the scapula. No respiratory murmur was audible over this region of dulness. The general condition of the patient became gradually worse, with febrile symptoms from time to time. After four or five weeks a painful prominence began to be developed at the junction of the cartilage and bone of the left rib. In about five weeks, when death occurred, this tumour had reached the size of a small fist. At the same time the dulness on the right side became greater in front as well as behind; the liver was pushed down. For some time there was œdema of the right side and part of the abdomen, which gradually disappeared. Death occurred from increasing difficulty of breathing. The diagnosis made was an encysted exudation in the anterior portion of the pleura. The tumour on the third rib was considered to be a "cold abscess" or an enchondroma. The autopsy showed an elastic tumour, which had destroyed the anterior part of the third rib. Instead of any pleuritic exudation was found an enormous tumour, which occupied the greater part of the right thorax, and extended some way over the middle line to the left. The right lung was pushed backwards and upwards, the heart to the left, and the liver downwards. The latter was greatly enlarged, and contained various hard nodes, some imbedded in its substance, some prominent on its surface. The spleen was enlarged, and presented on its upper surface several vesicles, about the size of a wal-

nut, and containing bloody fluid. The kidneys were also enlarged, and contained the same kind of nodes as the liver. On account of the advanced decomposition it was impossible to make any further examination of these three organs. The mediastinal tumour was 20 cm. long, 21 broad, and 13 thick, adherent to the right lung, the pericardium, and the large vessels. The left and larger portion of it was almost completely solid, richly vascular in parts, but distinctly fibrous. In the fibrillar intervening substance were numerous spindle-shaped cells, like those of spindle-celled sarcoma; but the chief mass consisted of obliquely striated spindle-cells, containing one or more large nuclei. The older elements were striated throughout their whole thickness, the younger only on the surface (Virchow's Myoma striocellulare). Their derivation from normal muscle was impossible, as the cells had double prolongations, like the branched muscle-cells of the heart. The right and smaller half of the tumour consisted of small cysts, about 25 cm. in diameter, containing on their inner surface small outgrowths and vesicles, like those found in proliferating ovarian cysts. In many places the cysts were confluent. In the middle of the tumour was a cavity, 25 by 15 cm., which was surrounded by a leathery wall and enclosed hair, small plates of epidermis, cholestearin, and fat. Other cavities were lined with ciliated epithelium. In the neighbourhood were small scattered portions of hyaline cartilage, with a thick perichondrium, extremely like the cartilages of the bronchi, though no connection between the two could be made out. In one place the tissue was finely spongy, and in the meshes were roundish, granular, nucleated cells, like gland-cells, the stroma being made up of sarcomatous round and spindle-cells. In the tumour on the rib were cysts, striated muscle-cells, and patches of carcinoma. One patch, the size of a hemp-seed, consisted of round alveoli made up of elastic fibres, like fœtal lung. This tumour was entirely surrounded by perichondrium, and was not connected with that in the mediastinum.

The variety of elements entering into the formation of this growth points to a fœtal origin. The ciliated epithelium and cartilages in the large tumour and the elastic fibrous network in the small "recall so vividly the organs of respiration that the mind is compelled to think of an *aberration* of particles, which originally belonged to bronchi and lungs." Still, there is a difficulty in holding this view in the face of the fact that the greater part of the large growth, and the whole of the small one, was developed during the latter part of the patient's life. We must therefore, especially with regard to the tumours in the abdominal glands, consider it as a "heterochronous, metastatic growth." The paper concludes with remarks on dermoid cysts of the mediastinum and their possible starting-points, and on lympho-sarcomata (thymus, bronchial glands, skin).

Gueneau de Mussy ('Gaz. Hebd.,' viii, 462, &c.), writes a long paper on "Bronchial Adenopathy in the Adult." He looks upon this affection of the bronchial glands as secondary, and following lesion in organs traversed by the lymphatic vessels which feed them; under the influence of constitutional predisposition they acquire such development as to become the predominant element in the disease; in some cases they

seem to be attacked primarily, for instance, as in children, "tubercles" may be present in them while absent in the lungs. And in children this "bronchial adenopathy" is more frequent than in the adult, in whom it has been but little studied. In the first stage of the affection the functional disorder is slight; the patient complains of dry cough, resembling hooping-cough, and dyspnœa; abnormal sensibility about the seat of the affected glands, in the interscapular or subclavicular space, with spontaneous pain there, due probably to the intercostal nerves, and consequently to be looked upon as reflex. The expectoration is little in comparison with the cough; sometimes bronchitis is a complication, or even in some cases the starting-point of the adenitis. He sketches at some length the plan he follows in percussing out the limits of the gland enlargement, whether in the neighbourhood of the trachea or the bronchi, and the alteration caused in the voice and the respiration. In addition to these signs, the character of the cough, the dyspnœa, the depression above the sternum during deep inspiration, the respiratory sibilus often audible at a distance, and the attacks during which the cough and dyspnœa become more violent, all draw attention to the bronchial glands. These latter attacks, according to Fonssagrives and Rilliet and Barthez, are to be attributed to a rapid congestion or some temporary movement of the glands. As the disease advances symptoms of compression and strangulation show themselves, and death occurs either from this cause or from breaking down of the glands and their rupture into the trachea, bronchi, lung or pleura, where they sometimes set up pneumothorax, and in other cases into the œsophagus or mediastinum. He speaks shortly of the differential diagnosis from consolidation of the lung, from aneurism and other mediastinal tumours; and as to prognosis, though he allows that the affection is almost always fatal, yet he thinks he has seen cases in which it has retrograded. He has noticed it as a complication in bronchitis, pneumonia, pleurisy, whooping-cough, measles, and typhoid fever. The paper concludes with the histories of six cases.

Murchison ('Path. Soc. Trans.,' xxii, 68) showed specimens of lymph-adenoma from the mediastinum and kidneys from a woman æt. 21. Bennett (ib., 70) also showed a growth of a same kind from a girl æt. 17; and Payne and Clapton (ib., xxiii, 270) record a case of mediastinal and intra-cardiac tumour, also like lymphadenoma, but having a greater preponderance of cells (lympho-sarcoma).

Clarke ('Lancet,' 1872, ii, 10) records the following:—A mason, æt. 30, had been perfectly well up to six weeks before his admission into hospital; at that time, after lifting a heavy stone, he noticed a swelling in his neck and complained of dull aching pain down the right arm, dyspnœa, dysphagia, and partial aphonia. The chest and arms, especially the right, were very œdematous, and the superficial veins were much enlarged; there was some flattening below the left clavicle; deficient movement and dulness of whole of left side, back and front; and on right side, below clavicle to fifth rib. The patient died of exhaustion a fortnight later. At the autopsy "a large solid mass of a carcinomatous nature" extended over the whole of the upper part of the thorax, closely connected with the left lung and adherent to the right pleura; the left

lung was contracted and adherent to the growth. The mediastinal glands were much enlarged; several masses of cancer were present in the liver and pancreas.

Risdon Bennett, 'Cancerous and other Intrathoracic Growths, their Natural History and Diagnosis, pp. 190, London, 1872. Hörstmann, 'Drei Fälle von Mediastinaltumor,' Inaug. Diss., Berlin. Pöhn, 'Beschreibung eines Falles von Dermoidcyste des Mediastinum anticum,' Inaug. Diss., Berlin.

Pleurisy, &c.

Huss ("Ueber den anderseitigen pleuritischen Schmerz," 'Deut. Arch.,' ix, 242) attempts to find an anatomical explanation for those cases in which pain occurs on the side opposite to that affected with pleurisy. Laennec first described cases in which the pain was felt elsewhere than on the affected side. Andral challenged the correctness of these observations; Wintrich has also been unable to confirm them. Various writers have, however, noticed the same occurrence, without being able to give any explanation of it. Gerhardt, in a case observed by him, in which the patient complained of pain on the left side near the sternum, while the pleuritic rub was to be heard on the opposite side, assumed the existence of anastomoses between the intercostal nerves in the anterior mediastinum. Huss attempted to support this view by investigating the anatomy of eight sterna, and in one of them did find some such connection between the nerves of the two sides.

Handfield Jones ('Brit. Med. Journ.,' 1871, i, 139) gives a clinical lecture on a case of effusion into the left pleura, in an engineer, æt. 19, on whom paracentesis was performed on the twentieth day after his admission into hospital, about eighty-six ounces of fluid being removed. The patient had ascites at the same time, which had also nearly disappeared on his discharge. In some remarks on the case the lecturer allows that the presence of weak and distant breathing on the affected side should not cause a postponement of the operation, such as was occasioned here, "for lung-sounds can penetrate through a notable thickness of fluid."

Redenbacher ('Deut. Arch.,' ix, 240) records the following:—A boy, æt. 6, previously healthy, had been for four weeks suffering from abundant and increasing effusion in the right pleura. He had been treated with quinine and iron, but had rapidly lost flesh. Paracentesis was then performed. More than two pints of pus were removed, with immediate relief to the patient. The cavity was washed out twice daily with lukewarm water. The canula was taken out on the fourteenth day. A month later the patient was greatly improved in health, and there was no difference, either in measurement or respiratory murmur on the two sides.

Paul ("De la Thoracentèse, comme methode de traitement de la Pleurésie Aiguë," 'Bull. Gén. de Thérap.,' lxxxi, 83) publishes eight cases of acute pleurisy in patients between the ages of 21 and 56, in which he practised paracentesis with success. They were dismissed well in from two to three weeks later. After remarking on certain precautions to be taken, he asserts the perfect harmlessness of the operation, and, as an aid in prognosis, insists upon the fact that when the fluid readily coagulates

after its exit, it may be pretty certainly assumed that the effusion will not reoccur, or if it does reoccur will do so in so small a quantity as to be soon reabsorbed.

Béhier gives a lecture ('Gaz. des Hôp.,' 1871, 349) on a case of pleuritic effusion on the left side, in a man, æt. 26. His views are nearly the same as Paul's. The dangers caused by the effusion he considers to be displacement of the heart, and the hindrance thus placed in the way of its functions, the slow asphyxia resulting from compression of the lung, the long-continued fever and suppuration, with its tendency to tuberculosis, and the deformity caused in the thoracic walls. He also discusses the objections brought against the operation, and gives the following as indications for it. It is necessary in cases where the effusion does not yield to ordinary remedies, and where it increases; when the patient is too feeble to wait for any length of time the absorption of the fluid; when the opposite lung is attacked with bronchitis or any other affection preventing its full and normal working, and when there is any reason to suppose a tendency to tuberculosis. As regards the period at which the operation should be performed, it is ordinarily the ninth or eleventh day of the affection; in general it may be delayed until symptoms of inflammation have subsided. An exception is to be made in cases of necessity, when it should be performed on the fourth day of the effusion.

Bouchut (ib., 505) describes the different modes of operating in cases of pleuritic effusion, from the earliest times. He himself prefers Dieulafoy's aspirator.

Evans ('St. Thom. Hosp. Rep.,' ii, 69) reviews the literature of paracentesis thoracis, and gives tables of cases observed by different authors and by himself. He insists upon an early evacuation of the effused fluid, and inclines to the view that the sudden death, by no means uncommon in cases of pleuritic effusion, is due to coagulation of blood in the pulmonary artery.

Various papers discussing the propriety of tapping in pleurisy and empyema, by Fuller, Priestley, Douglas Powell, and others, may be found in the first volume of the 'Brit. Med. Journ.' for 1872. The papers placed in the bibliography of this subject are sufficient proof of the interest taken by French writers in paracentesis.

Carter ('Brit. Med. Journ.,' 1872, i, 583) records a case of pleuritic effusion on the left side, in a sailor, æt. 24, on whom paracentesis was performed. The patient died rather suddenly the sixth day after the operation, and the autopsy revealed a large "abscess" in the left lung, which had recently emptied itself by a rupture in its outer and upper surface.

Vallin ("De l'Apoplexie dans les Épanchements de la Plévre," 'Réc. de Mém. de Méd. Milit.,' xxvii, 388) gives, at length, the report of a case of pleuritic effusion on the left side in a man, æt. 21. On the thirteenth day of his admission into hospital he became temporarily unconscious. This fit was followed by paralysis of the right side of the face and of the right extremities. Thoracentesis was performed the same day, and 1800 grammes of serous liquid removed. The heart, which had been slightly displaced, returned to its normal position; resonance and puerile breathing reappeared in the upper and front part of the thorax.

Some days later, after a rigor and persistently high temperature, the effusion returned, and another operation removed 2100 grammes of opalescent fluid containing a few flocculi. A drainage tube was kept in the wound after a third withdrawal of pus; the opening was enlarged and the cavity washed out with iodine and alcohol, the paralysis of the right side gradually disappeared, but the patient died at length of exhaustion. At the autopsy the left pleural cavity formed an enormous purulent sac; the heart contained only recent clots; the left corpus striatum was softened, and two branches of the middle cerebral artery were obliterated by a compact mass of the consistence and colour of wax, the blood-vessels being completely healthy. He looks upon this as an embolus detached from one of the cavities of the heart, and supports his theory by the fact that about the time at which the apoplectic fit occurred a gangrenous patch appeared on the right foot, due, probably, to the same cause. He remarks on the rarity of this case, and is able to find only two other similar ones. The first is recorded by Potain ('Bull. de la Soc. Anat.,' 1861, 39). In this case, that of an elderly woman, who was attacked suddenly with hemiplegia during an acute attack of pleurisy, and died in twenty-four hours, the anterior cerebral artery was found obliterated, and the heart contained old clots. The second case was published by Robinson ('Army Med. Rep.' for 1869). Here, in a soldier, æt. 22, also suffering from pleuritic effusion, paralysis of the left side, occurring about two months before death, was connected with softening of the right corpus striatum.

Renault ('Union Méd.,' xii, 291) records the case of a man, æt. 27, under the care of Besnier. The patient had effusion on the right side, and died suddenly in his bed. The autopsy showed a large fibrinous clot, completely filling the right auricle, extending into the ventricle and pulmonary artery. The cerebral arteries were perfectly healthy. Besnier, who had purposely deferred an operation, concludes that in all cases in which there is considerable effusion, on the right side as well as the left, thoracentesis ought to be performed as promptly as possible. Death was due in this case, he thinks, to general arrest of the circulation caused by the large clots in the right heart.

Hayden publishes ('Dubl. Quart. Journ.,' lii, 49) a record of four cases of diaphragmatic pleurisy, together with the particulars of six cases already published by Andral in his 'Clinique Médicale.' He concludes that the affection is characterised by—

1. Sudden and severe pain in either hypochondrium, extending in the line of the costal cartilages, generally likewise down the corresponding side of the abdomen, occasionally upwards to the tip of the shoulder, and aggravated by movement of body, full breathing, cough, and vomiting.

2. Shallow and thoracic breathing, dorsal decubitus, and comparative freedom from pain in that state of rest.

3. Absence of febrile action in mild cases uncomplicated by general peritonitis, pneumonia, perihepatitis, or other form of acute inflammation; and in severe cases, whether complicated or not, symptoms of collapse.

4. Partial or complete suspension of respiratory sound in the base of

the lung on the affected side, and faint frottement, or rustling sound, audible with respiration.

5. Inability to swallow; nausea and vomiting of occasional but rare occurrence, and confined to the most aggravated cases.

6. Displacement of the diaphragm *upwards* in recent cases attended with suppurative inflammation, but *downwards* when the antecedent inflammation has proceeded to the formation of pus.

7. Resistance of the symptoms to active treatment, and yielding to dry cupping, the use of belladonna and opium internally (! *Rep.*).

All his four cases recovered.

Wolff, "Empyema Traumaticum," 'Deut. Klin.,' 1871, 219. Müller, "Ueber Empyema necessitatis pulsans" (with case of a man, æt. 24; pleurisy of left side, tapped and washed out daily; recovery), 'Berl. Klin. Woch.,' 1872, 37. Quincke, "Zur Behandlung der Pleuritis," ib., 65. Parona, "Due Casi di Empiema vantaggiosamante curati con ampia apertura," 'Gaz. Méd. Lomb.,' 1872, 41. Laboulbène, "Pleurésie purulente suivie de Pyopneumothorax, guérie au moyen de la Thoracentèse et du lavage de la Plèvre" (girl, æt. 7; seen three years afterwards; the only abnormality to be found at that time was slight depression of the left thorax and slight prominence of the scapula; the case is given at fearful length—fourteen pages), 'Bull. Gén. de Thérap.,' lxxxii, 97. Id., "Note sur l'Élévation de la Température centrale chez les Malades atteints de Pleurésie aigue, et auxquels on vient de pratiquer la Thoracentèse," 'Gaz. des Hôp.,' 1872, 1178. Bouchut, "De la Thoracentèse par l'Aspirations pneumatiques dans la Pleurésie purulente," ib., 529. Id., "La Jeune et la Vieille Thoracentèse," ib., 681. "Thoracentèse," ib., 337, and cf. ib., 445. "Observations pour servir à la question du Traitenent de la Pleurésie purulente," ib., 522. Chaillou, "Quelques Observations de Pleurésie traitées par le Thoracentèse"—(1) girl, æt. 18, left side, recovery; (2) girl, æt. 22, left side, sudden death; (3) girl, æt. 16, right side, recovery; (4) man, æt. 68, left side, death; (5) man, æt. 30, left side, death; (6) boy, æt. 1½, right side, recovery; (7) man, æt. 45, right side, recovery; (8) woman, æt. 36, double, death; (9) man, æt. 40, recovery; no autopsies in any of the fatal cases; ib., 444. Julabert, "Deux faits pour servir à l'Histoire de la Pleurésie purulente et de l'Opération de l'Empyème par l'Incision," ib., 473. Pernet, "Épanchement Pleurétique, Thoracentèse, Mort" (woman, æt. 42, death twenty-four days later from syncope), ib., 540. Spirt, "Empyème, Thoracentèse, Drainage, Amélioration" (man, æt. 27), ib., 571. Dujardin-Beaumetz, "Réflexions sur un cas d'Empyème," ib., 810. Roger, "Documents pour servir à l'Étude de l'Empyème," ib., 627. Salomon, "Pleurésie purulente traitée par la Thoracentèse et les Injections au Nitrate d'Argent," ib., 667. Rinaldi, "Deux cas de Pleurésie purulente, Punction et Injection Iodée, Guérison," ib., 844. Richet, "Des Abcés Pleuraux," ib., 721. Béhier, "Pleurésies à Épanchements moderés, Thoracentèse avec Trocarts capillaires et Aspirations; Appareils divers," ib., 1017, &c. Raynaud, "Opération de l'Empyème par une Methode mixte," ib., 497. Thorowgood, "Cases of Pleuritic Effusion marked by very Fœtid Expectoration," 'Brit. Med. Journ.,' 1871, ii, 7. Axford, "Thoracentesis with Admission of Air" (boy, æt. 4, full expansion of lung later), ib., 1872, i, 498. Liveing, "Empyema, Paracentesis, drainage-tube worn for three and a half years" (man, æt. 20), ib., 582. Maclagan, "A New Mode of performing the Operation of Paracentesis Thoracis," ib., ii, 63. Playfair, "Case of Empyema, treated by Paracentesis and subsequent Drainage," 'Lancet,' 1871, ii, 219. Chaplin, "A Case of Paracentesis Thoracis in which a large opening was successfully employed" (in a boy, æt. 12, pleurisy left side, empyema, recovery), ib., ib., 428. Thompson, "A Case of Pyothorax" (man, æt. 43, paracentesis, recovery), ib., 1872, i, 114. Williams (C. T.), "Case of Empyema Tapped, great improvement from Drainage-tube" (man, æt. 28), ib., 1872, i, 251. Wade, "Treatment of Pleuritic Effusion by Diuresis" (boy, æt. 13, left side), ib., ii, 411. Ramskill, "Two Cases of Pneumothorax treated by Aspiration," ib., 1871, ii, 259. Thompson, "Clinical Lecture on a Case of Pneumothorax" (empyema in connection with cavity, fibrous degeneration of lung in a man, æt. 52), ib., ib., 389.

Laffan, "Observations illustrative of the Use of Dieulafoy's Pneumatic Aspirator," 'Dubl. Quart. Journ.,' liii, 202. Fitzmaurice, "Cases of Effusion into the Chest," ib., lii, 388.

Bronchitis and Emphysema.

Julian ('New York Med. Rec.,' vi, 357) thinks that the indication in suffocative capillary bronchitis is obviously to get rid of the mucous material as speedily as possible, and restrain the hypersecretion of the membrane. For this he has very successfully employed the sulphate of zinc and tincture of sanguinaria. Of the former, he gives to a child, æt. 6 to 18 months, doses of one half to a grain, and from five to ten drops of the tincture every two or four hours; but when called at a later period and the malady threatens suffocation, he gives as much as from three to thirty drops of the latter, at intervals of one half to two hours, regardless of vomiting. He quotes the case of a man whom he found in a state of collapse, and to whom he applied his treatment with success.

Isaakson ('Virch. Arch.,' lii, 466) has studied the changes in the vessels in emphysema. He finds them much smaller than normal, stretched instead of winding; several in places granular and cloudy, filled with thrombi and not allowing the coloured injection to pass. After the injection of silver solution, the normal appearance of endothelium was absent in the earliest stages; here the vessel-wall was finely granular, lined with white blood-corpuscles, which were the starting-points of coagulation and complete thrombosis of the canal. These portions underwent fatty changes and entirely disappeared. He considers this destruction of the vessels to be the primary stage of emphysema.

Berkart ('Lancet,' 1871, ii, 745) describes an instrument which he has used with the best results in emphysema, and which, by the simple action of a pump, withdrawing air at the end of each expiration, increases the abnormally lessened expiratory power in this affection.

Hertel ('Berl. Klin. Woch.,' 1871, 301) records a case occurring in the practice of Traube in which there was most extensive increase in the resonance of the lung, sonorous râles over nearly the entire thorax, nummular sputa, cyanosis of the face and body, contracted pupils, somnolence, and the phenomena of double diastolic sound. Traube's diagnosis was as follows:—Diffuse catarrhal inflammation of the bronchi, probably with bronchiectasis; increased volume of lung, probably with true vesicular emphysema; dilatation and hypertrophy of the right ventricle; fatty degeneration of the right ventricle, which, according to Traube's experience, is always present when a chronic inflammation of the lungs is accompanied by persistent and increasing cyanosis. The diagnosis was completely confirmed by the autopsy. Traube discusses questions as to the increase of secretion in the bronchi and the diagnosis of catarrhal inflammation of the bronchi and bronchiectasis. The double diastolic sound he explains by the hypertrophy of the right auricle, and the consequent stretching of the tricuspid valve, which he considers to be far from uncommon.

De Savignac, "Séries des Formules pour le Traitement de la Bronchite," 'Bull. Gén. de Thérap.,' xxxi, 252. Decayeux, "Les Fièvres Catarrhales" (an advertise-

ment of the Syrup of Peter Lamouroux), 'Gaz. des Hôp.,' 1871, 510. Laffan, "Local Bleeding in the Dilated Right Ventricle of Chronic Bronchitis," 'Brit. Med. Journ.,' 1872, i, 128. Greenhow, "Lungs from a Case of Cured Phthisis, Death from Capillary Bronchitis, Cavities lined with False Membrane in both Lungs, Proliferation of Interlobular Connective Tissue, and great thickening of the Pleura" (man, æt. 30), 'Path. Soc. Trans.,' xxiii, 47. Wilks, "Bleeding in Emphysema and Bronchitis" (woman, æt. 60, relief), 'Lancet,' 1872, i, 88. Leyden, "Tyrosin in Sputum" (girl, with putrid bronchitis), 'Virch. Arch.,' lv, 239. Neureutter, "Bronchiektasie und hochgradiges Emphysem als Compensation bei einem sieben Jahr alten Knaben," 'Oesterr. Jahrb. f. Paediatrik,' 1872, 18.

Bronchial Asthma.

Leyden ('Zur Kenntniss des Asthma Bronchiale,' Rostock, 1871) describes a peculiar expectoration occurring in bronchial asthma. It is scanty, very tenacious, and transparent. It contains a mass of filaments and flakes, some very marked from their thickness and yellow colour. They are brought up from the finest bronchi, and contain in their meshes granular mucus-corpuscles, and generally a large quantity of very beautiful and peculiar crystals, of an elongated octahedral form. The largest are visible under a power of 300 diameters, the smallest under one of 600. Crystals of the same kind have been described by Friedreich in croupous bronchitis, and they are probably identical with those found by E. Neumann in the medulla of the bones. In the blood of leuchæmic patients Leyden thinks that these crystals may act as mechanical or chemical irritants on the peripheral ends of the pneumogastric in the mucous membrane, and provoke reflex contraction of the muscles of the small bronchi.

Weber, "Das Aubrée'sche Geheimmittel gegen Asthma Nervosum," 'Deut. Arch.,' viii, 217. Lessdorf, "Asthma Nocturnum Periodicum. Morphium Injection Palliativmittel; Comprimirte Luft Radicalmittel," 'Deut. Klin.,' 1871, 15. Anstie, "On the Pathological and Therapeutical Relations of Asthma, Angina Pectoris, and Gastralgia," 'Brit. Med. Journ.,' 1871, ii, 550. Gaskoin, "On the Treatment of Asthma," ib., 1872, i, 339. Thorowgood, "A few Remarks on the Treatment of Asthma," 'Med. Press and Circ.,' 1872, i, 27.

Whooping-cough.

Steffen ('Jahrb. f. Kinderkr.,' iv, 427) confirms the good results obtained by the employment of quinine in whooping-cough, as first pointed out by Binz, and verified by Breidenbach. In the majority of cases he found it work speedily and readily, failing only in a few. He employed pretty strong doses, half to one gramme in the twenty-four hours, in children from two to five years. He gives two cases in full. In a case of a child of three years, who could not be got to take the drug, he used injections for the purpose. In three days nine injections, containing altogether two grammes of quinine, were given, with alleviation of the symptoms.

MacCall ('Glasgow Med. Journ.,' 1871, iii, 162) during the winter of 1869-70 found ulceration of the frænum linguæ in 111 out of 252 children attacked with whooping-cough, or in about 44 per cent. The affection varied in degree from a mere abrasion to a deep fissure with a grey or yellowish surface, and often bleeding during or after a

paroxysm. In 105 out of the 111 it was situated in front of the frænum; in four out of the other six its varying position was accompanied by some abnormal disposition of certain teeth. He considers it to be due to the rubbing of the tongue against the latter in the act of coughing. He looks upon it as a valuable diagnostic sign in cases in which the cough is not heard at the time when the patient is seen.

Prestwich, "Cod-liver Oil in Whooping-cough," 'Lancet,' 1871, ii, 812. Murray, "Extract of Nettles in Whooping-cough," ib., 1872, i, 539. Grantham, "Effects of the Vapour of Ammonia in the Treatment of Whooping-cough," 'Brit. Med. Journ.,' 1871, ii, 323.

Pneumonia.

Revillout ('Gaz. des Hôp.,' 1871, 273) discusses the question whether pneumonia is a disease having a defined course and type, and whether it be true, as Jaccoud affirms ('Traité de Pathologie Interne,' Paris, 1871, ii) that it cannot be abridged a single hour. He looks at the affection from the point of view of other diseases, *e. g.* albuminuria, syphilis, &c., and concludes that the holding of any such view transforms the physician into a fatalist ("transforme en un *Musulman* dans le sens Arabe et précis de cette expression").

Farquharson ('Edin. Journ.,' xvi, 988) brings forward ten cases in support of his view as opposed to those of Trousseau, Hughes Bennett, and Sturges, which convince him of a special lowering of vitality which almost invariably attends extension of inflammation to the apex of either lung. In some remarks on the treatment of pneumonia he gives a single case in which he thinks aconite cured an extremely doubtful (*Rep.*) case of the affection.

Fitzmaurice ('Dublin Quart. Journ.,' lii, 386) concludes from his own observation that pneumonia in children and infants, and in some cases in which chest symptoms are absent, is often mistaken for other ailments, as dentition, worms, &c. He considers the law as laid down by West, that if the posterior part of the chest is free from a considerable amount of crepitation the infant is not suffering from any serious lung disease, to be inaccurate. His own experience leads him to believe that simple hepatized lung is oftener found in other parts of the chest. "By keeping the ear perseveringly to the chest, when exhaustion takes place (after crying, &c.), the hurried breathing facilitates the discovery of tubular breathing, the first sign of pneumonia generally observed in the child." Blistering is, in his opinion, the sheet-anchor in this disease; and dressing with mercurial ointment, he finds, excludes the air more effectually than simple dressing. He gives four cases to illustrate his position. The fourth case, which he seems to have looked upon as croup, he "cured" by giving large doses of decoction of senega.*

Sturges ("The Etiology of Pneumonia," 'St. George's Hosp. Rep.,' v, 135) writes on the general influence of the weather upon the so-called inflammatory diseases of the chest. Taking the average

* Croupy cough and laryngeal stridor are more frequently omitted the forerunners of simple bronchitis in children.—A. P

(1857—66) the highest number of deaths in England from bronchitis occurs in the middle of January, while for pneumonia it is nearly two months earlier, *i. e.* at the end of November. As regards the influence of temperature, it would seem that cold does not necessarily affect the pneumonia rate, but always and markedly the bronchitis rate. For instance, a low temperature towards the end of October, and again in the middle of November, 1869, is followed by a bronchitis rate greatly in excess of the average, while pneumonia, though not unaffected by the change, is only slightly so, and remains to the end of the month much under its average. Then, with excessive cold and a north wind, it rises considerably. Again, extreme cold in the middle of January, 1867, is followed by a large increase in the rate of bronchitis, while pneumonia actually decreases in the same time, and to the end of the month remains below its ten years' average, the direction of the wind being north-west and south-west. His data show that rain increases the rate of bronchitis out of all proportion with that of pneumonia. During the rains of the monsoon in India the latter disease shows a remarkable decrease. Wind is favourable to pneumonia, chiefly, if not altogether, when its direction is northerly or easterly. The writer shows that these facts are generally confirmed by a comparison of years of high and low mortality.

Popoff ("Experimente über Lungenentzündung," 'Wien. Med. Jahrb.,' 1871, 553) injected ammonia into the lungs of dogs narcotised by morphia, in order to set up inflammation. No symptoms of pyrexia occurred under these conditions, the morphia diminishing the temperature (Stricker and Albert). The blood pressure was increased in all cases immediately after the injection. In dogs which had not been narcotised there was an increase of temperature, lasting for twenty-four hours.

Lebert ("Ueber die Veränderungen der Körperwärme in der primitiven acuten Pneumonie," 'Deut. Archiv,' ix, 1) after a full and exhaustive paper on the temperature of pneumonia, gives the following among other conclusions:—The affection may occur with slight and even no pyrexia; there are no so-called critical days; double pneumonia, as well as being more dangerous to the patient, has a longer course; lobar pneumonia, if accompanied with diffuse bronchitis (by no means to be confounded with broncho-pneumonia), has slow convalescence; a pneumonia may, much more frequently than is generally supposed, have a protracted, subacute, or even chronic course, without any necessary result in true tuberculosis, though it may frequently tend to shrinking of the lung and bronchiectasis. In a sixth of the cases observed by the writer no crisis occurred.

Hayem ('Gaz. Méd.,' 1871, 399) records the following case in which death occurred suddenly during convalescence from pneumonia. The patient was a woman, æt. 49, who had passed safely through a simple inflammation of the right lung, and at her own request had been allowed to leave her bed. During the day she went to the closet, but
ied for help, and was found on the floor in a state of syncope.
e bed, she was very pale, her extremities cold, her re-
t she was still conscious. She had had no œdema

of the legs, but after death varicose veins, which had been overlooked during life, were discovered on them. In addition to the signs of the lobar pneumonia in course of resolution, and some signs of old lung-mischief, there were found seated upon and extending from the bifurcation of the pulmonary artery into its different branches a number of clots, non-adherent to the walls of the vessels, and showing impressions of venous valves. Clots of the same kind were found in the varicose veins, especially on the right side; the walls of these vessels were perfectly healthy, excepting the usual changes found in such veins. Except when they were entangled among the valves, &c., the clots lay quite free. The emboli in the pulmonary artery were evidently portions of these clots, formed without any phlebitis during the pneumonia, and detached by the muscular exertion when the patient got up from bed. Hayem refers to a case of the same kind which had occurred in the practice of Tardieu in 1868. But in the latter the varicose veins were inflamed, and were felt as hard cords, and easily explained the coagulation which led to the same fatal result.

Moxon ('Path. Soc. Trans.,' xxii, 38) describes a peculiar form of pneumonia in a syphilitic subject who was killed by fracture of the cervical spine. The lower half of the left pleura was much thickened and coated with recent firm lymph; the lung corresponding to this portion showed a state of grey fibroid change, with diminution of bulk and hardening and darkening of the tissue. This state affected nearly all the lower lobe, and spread with an irregular border into the upper. The right lung showed large patches of thickening on its lower half. The vocal cords were thick. The liver was enlarged, lardaceous, and contained cicatricial patches like those on the lung. The spleen, kidneys, and supra-renal capsules were also lardaceous. No symptoms of chest disease seem to have occurred during life, nor is any microscopical examination of the new tissues mentioned as being made after death, but Moxon concludes, from the presence of marked general syphilis, that the pleurisy and pneumonia were syphilitic.

Green ("Interstitial Pneumonia," ib., xxiii, 39) records the appearance found in the lungs of a man æt. 60, who suffered from chronic bronchitis and died of an acute attack of that affection. The right lung was adherent, its pleura thickened and soft. There was no consolidation or caseation, but the lower lobe looked like a piece of sponge, and was made up almost entirely of dilated bronchi and fibrous tissue, perfectly lax and soft. The left lung was, like the upper lobe of the right, pigmented and tougher than natural. The kidneys were slightly indurated. The microscope showed a growth of fibro-nucleated tissue round the bronchi and blood-vessels, affecting also the alveoli.

Brouardel (see 'Lancet,' 1872, ii, 493) draws attention to the very rapid formation of interstitial pneumonia and of false membranes, which reduce the size of the lung and form an obstacle to its expansibility, and consequently the harmlessness of early, and the danger of late, paracentesis.

Strohl ('Union Méd.,' xi, 134) has been using for some years the neutral acetate of lead in cases of pneumonia. He was casually led to do so in 1841 in treating a woman who, in spite of bloodletting,

antimony, and blisters, had a return of the affection on going back to work too soon, and in whom a recurrence to the same treatment was impossible. Rapid recovery followed the exhibition of the lead in doses of five, increased to fifteen centigrammes, in the day. He next applied it to cases of the disease in old and feeble people, in whom the heroic treatment above mentioned had had no effect or could not be resorted to; and lastly, he employed the drug in cases of pneumonia occurring in all ages. He publishes in full 14 out of 33 cases. The mortality was over 10 per cent. The average period of the pneumonia, dating from the commencement to the cessation of the physical signs, as revealed by the stethoscope, was 10·23 days.

Papillaud, "Du Traitement de la Pneumonie," 'Gaz. Méd.,' 1871, 312. Mosler, "Ueber biliöse Pneumonie und dadurch complicirten Typhus recurrens," 'Deut. Arch.,' x, 266. Alt, "Ueber die Behandlung des croupösen Pneumonie mit Veratrin" (with curves of pulse and temperature of three cases, besides one in the text; twenty-one cases given altogether), ib., ix, 129. Weigand, "Zur Pneumoniefrage," 'Berl. Klin. Woch.,' 1872, 6. Liebig, "Behandlung der chronischen catarrhalischen Pneumonie mit erhöhtem Luftdruck," 'Wien. Med. Woch.,' 1871, No. 20. Moxon, "Acute Interstitial Pneumonia," 'Lancet,' 1872, ii, 779. Williams, "Pneumonia," 'Med. Times and Gaz.,' 1872, i, 121. Read, "Oxygen in Diseases of the Lungs" (sixteen cases of phthisis, acute and chronic pneumonia, and chronic bronchitis, in which the gas was used regularly, and for a sufficient time to warrant the drawing of a conclusion as to its effects), 'New York Med. Journ.,' xiv, 382.

Brown Induration and Hypertrophy.

Delafield ('Amer. Journ. Med. Sci.,' lxi, 95) records his observations on "pigment induration" of the lungs, based on twenty autopsies, in which he found this change in connection with disease of the heart. The lungs are small, their lobes adherent to one another and in part to the costal wall; the pulmonary pleura thick and opaque. On section the lung-tissue is resistent, very dry, containing scarcely any air, blood, or serum. The microscope revealed (1) new pigment, (2) hypertrophy of the walls of the air-cells, (3) dilatation of the capillaries, and (4) a marked increase of cellular elements within the alveoli. An analysis of the cases shows that mitral stenosis is almost always accompanied by pigment induration of the lungs; that simple mitral insufficiency causes it in nearly half the cases; and that aortic disease causes it in one fourth. A full analysis, with tables, is given of the post-mortem appearances in the other viscera, &c.

Rindfleisch ('Centralblatt,' 1872, 65) writes on the muscular tissue of the smaller bronchi, which becomes much hypertrophied in the so-called brown induration of the lungs. He describes a peculiar and distinct layer of circular muscular fibres as surrounding the smallest bronchi, forming a kind of sphincter where they open out into the infundibula; these circular fibres send loops into the openings of the latter, which are also surrounded by smooth muscular fibres. These fibres may be easily made out in the normal lung by those who have observed them in the hypertrophied condition.

Thierfelder, "Ein eigenthumlicher Fall von Hypertrophie und epithelialer Hepatisation der Lungen," 'Deut. Arch.,' x, 209.

Gangrene and Abscess.

Senator ("Ein Fall von Lungenabcess mit allgemeinem Hautemphysem," 'Virch. Arch.,' liv, 278) publishes a case of abscess of the lung supervening on pneumonia, breaking through into the subcutaneous tissue and causing general subcutaneous emphysema. The latter came on suddenly and with great rapidity, and was due, according to the patient, to violent crying out. The autopsy revealed a cavity in the posterior part of the left lower lobe, about the size of a fist, and filled with purulent fluid. The pleura and layer of muscles which limited it were ecchymosed, rotten, and boggy. A sound could easily be passed from it in several directions into the pleural cavity.

Salkowski ('Berl. Klin. Woch.,' 1871, 169) writes on this rare and little known affection, and gives a case, occurring in Leyden's clinique, in which abscess followed an attack of croupous pneumonia of the right lower lobe. The patient was an ill-conditioned man of 49, who had been a drinker. The dulness cleared up with all symptoms of a crisis on the eighth day; next evening a fresh attack of pyrexia occurred, with tearing cough and abundant, thick, puriform, sputa. On the fifteenth day shreds of lung-tissue were found in it under the microscope, which gradually increased in amount and in size, reaching the length of an inch. A month after the first commencement of the affection these shreds were found for the last time; the sputa altered in character, became muco-purulent, and lastly disappeared. About the same time the thorax sank in, the general condition of the patient improved, and on the fiftieth day he left able to work. The diagnosis of lung abscess is based especially on the sputa; the temporary presence of shreds of lung-tissue, the absence of signs of decomposition or fungus spores, prevent its being confounded with gangrene; the accompanying symptoms leave out of question the possibility of phthisis, in which affection, also, the elastic fibres may be found. The treatment consisted of inhalation and exhibition of carbolic acid, quinine, cod-liver oil, and wine.

Waring-Curran ('Lancet,' 1872, ii, 669) gives a somewhat doubtful case of abscess of the right lung bursting through the diaphragm and umbilicus. The boy is still alive; in February, 1871, he had typhoid fever, followed by pneumonia; in September, 1872, a swelling appeared under the edge of the ensiform cartilage, which, four days later, "had moved, and was lower down, to the right, in the sheath of the rectus muscle." Next day this swelling burst and gave exit to an enormous quantity of offensive pus.

Leared (ib., 1871, ii, 47) records the occurrence of gangrene of the right lung in an intemperate man, æt. 49, who had fallen from a height of eight feet into the water, and had been submerged twice. He quotes two cases as occurring after immersion in water out of four cases of gangrene of the lung recorded by Stokes, and a case mentioned by Lankester in which gangrene followed the repeated dashing of cold water over a woman poisoned by opium. Death occurred in Leared's case thirty-five days after immersion. The temperatures taken were remarkable for sudden oscillations.

Browne ('Brit. Med. Journ.,' [illegible]) publishes a case of gangrene of the left lung in a religious and melancholic lunatic. The first symptom seems to have been hæmoptysis after a severe attack of pleuro-pneumonia. The writer has noticed this lesion in 2 out of about 600 lunatics whose bodies he examined post mortem. In all the previous mental derangement was melancholia. His experience does not agree with that of Cruveilhier, who directed attention to the frequency of gangrene in epileptic patients, nor with that of Trousseau, who intimates that amongst the insane it is sometimes due to inanition.

Burman (ib., 195) was moved by Browne's paper to examine the records of such cases in the Devon County Lunatic Asylum from 1841 to 1869. He finds that gangrene of the lung was the cause of death in 14 out of 1325 deaths during that period; 11 were males and 3 females; in 4 cases both lungs were affected. The form of mental disease was in 4 cases mania, in 3 dementia, in 3 imbecility, in 4 general paralysis, and in 2 melancholia. In 3 cases only is it recorded that there was refusal of food, and only 1 of the patients was an epileptic.

Anthracosis; Cancer; Parasites, &c.

Mayet ('Rev. Méd.,' 1872, i, 69) records the following: A miner, æt. 48, had had a morning cough for two years, and had been unable to work the last six months; the signs on auscultation, &c., revealed the presence of emphysema, chronic pneumonia, and probable coal infiltration. The autopsy showed the lungs immensely enlarged, the left having seven lobes and the right five. They were strongly adherent posteriorly, largely emphysematous, intensely black, and very hard and resisting. There were no cavities in them anywhere. On section the tissue was tough (sclerosed) and infiltrated with particles of coal. The bronchial glands were enlarged and in parts infiltrated with the same. Besides slight increase in the volume of the heart there was no abnormal signs in the other organs. In a discussion which followed the reading of his paper (see 'Lyon. Méd.,' viii, 796) he promulgates the opinion that the coal-particles were introduced, not through the respiratory, but the digestive organs (!)

Ross ('Dubl. Quart. Journ.,' li, 93) writes on the diseases of the lungs affecting those who work in dusty atmospheres. He gives five cases, with four autopsies.

Merkel ("Zur Casuistik des Staubinhalations-krankheiten," 'Deut. Arch.,' viii, 207, and ib., ix, 66) gives a series of observations of lung affection caused by the inhalation of various kinds of dust. The first case is that of a man whose occupation consisted in rubbing pieces of iron with sandstone. His symptoms were those of phthisis. The autopsy showed a cavity in the anterior [illegible] of the right upper lobe, [illegible] tissue of a [illegible]. The colour was due to the presence of pretty large particles of oxidized iron, especially round the bronchi. The diagnosis during life rested on the occurrence in the sputa of the same particles, sometimes

free, sometimes enclosed in cells. In the second case the patient was working in an ultramarine manufactory, and had presented a few weeks before death the symptoms of typhoid. After death the lungs were found filled with foreign particles, but there were no signs of enteric fever. The third case was one of siderosis. The patient, a man of 29, had worked for six years in a gold-leaf manufactory, and had inhaled the fine particles of oxide of iron. For the last seven years he had ceased to work at his trade. The post-mortem examination showed, in addition to a cavity about the size of a fist on the left side, shrinking, induration, and colouration of the lung-tissue by the particles of iron. The fourth case was one of anthracosis; here were found, besides the pigmented condition of the lungs, cheesy pneumonia and general tuberculosis (lungs, kidneys, and intestines). The case comes under Traube's phthisis melanotica. In the fifth case, in which no symptoms had been observed during life, the subject, a workman in an ultramarine manufactory, presented cavities of various sizes, filled with a bluish-black fluid mass, made up of coal-particles, cholestearine, fat-crystals, &c.

Risdon Bennett ('Path. Soc. Trans.,' xxii, 76) records the occurrence of secondary scirrhous or fibro-cancerous infiltration of the connective tissue of the lung in a woman, æt. 42, six months after the removal of the left mamma for the same affection. She suffered with symptoms of acute bronchitis. A microscopic examination of the sputa revealed nothing special; and she died as if from syncope.

Arnott (ib., 231) gives a case of epithelioma of the heart and lungs in a woman, æt. 50, secondary to epithelioma of the clitoris.

Sparks ('Lancet,' 1871, ii, 13) publishes a short note of the post-mortem appearances found in a case of primary cancer of the lungs. The patient, a woman, æt. 22, was supposed to have died of pleuro-pneumonia. There were nodules of encephaloid cancer in some false membrane on the right pleura and in the lower lobe of the right lung. The lower two thirds of the left lung consisted of a mass of encephaloid nodules, one of which was as large as a man's fist. The growth extended towards the middle of the body, pushing the heart far over to the right. It projected also into the left pleura, and had infiltrated the diaphragm, so that nodules projected on its under surface. No cancer was found elsewhere.

Waters (ib., 26) found the right lung the seat of scirrhous cancer in a man. He was said to have been quite well up to about twelve weeks before death. He was then seized with pain in the right side of the chest and dyspnœa, attended with cough and expectoration of white frothy sputa. Two weeks later his head, neck, and upper extremities became œdematous. The mediastinal glands were greatly enlarged and scirrhous throughout.

Lebert ('Berl. Klin. Woch.,' 1871, 25), gives three cases of hydatid cysts occurring in the lungs. The first case is that of a man, æt. 40, whose earliest symptoms, in the autumn of 1869, were those of tuberculosis. Half a year later, during an attack of varioloid, there was found some consolidation of the upper lobe of the left lung. In May, 1870, he spat up hydatid cysts, and again in October, since which time

he got better and was still alive when Lebert wrote. In the second case, a girl of 23 presented a fluctuating tumour in the left hypochondrium, which was supposed to be hydatid of the spleen. In the third case pneumothorax occurred from perforation of the echinococcus cysts through the pleura. During life this case had also been looked on as tuberculosis. Lebert makes some remarks on the diagnosis and etiology of the rare occurrence of primary echinococcus of the lung. The seat is generally in the lung-tissue.

In the case recorded by Zuber ('Gaz. des Hôp.,' 1872, 730), of a man, æt. 22, one of two hydatid cysts burst into the pleura and so caused death. In this case also the symptoms during life were those of tuberculosis.

Bird (quoted from the 'Australian Medical Journal,' 'Lancet,' 1871, ii, 23) has published a paper on the disease, which seems to be more frequent in Australia. The most common site of hydatids of the lung is the base of the organ. There may be no symptoms, and when they do occur they are those of mechanical pressure or irritation. According to the author, the rarity of visible venous engorgement distinguishes the case from one of intrathoracic cancer. One tapping, followed by bromide or iodide of potassium and kamela, are generally successful. (No light is thrown by any of these writers upon the origin of the hydatids in primary echinococcus-cysts in the lung; they seem to content themselves with the fact that it is most common in places where the drinking water is polluted by the excreta of dogs containing the ova of tænia.—*Rep.*)

Phthisis.

Condie ("On Spurious Consumption," 'Amer. Journ. Med. Sci.,' lxii, 389) distinguishes a tubercular and a non-tubercular phthisis, which may be very easily confounded. In both there is the same progressive and extreme emaciation, cough, expectoration, debility, hectic fever and night sweats. Their physical signs are also alike. But as regards prognosis it is essential to recognise the difference, and to do so attention must be paid to the constitution, predisposition, hereditary tendencies, and sputa of the patient. In tubercular disease of the lungs the sputa, in the early stages at least, consist most commonly of a white frothy mucus; later they become consistent and glairy, and of a darker hue. They are intermixed with small whitish particles of a cheese-like appearance—broken-down tubercular matter—and not unfrequently with distinct masses of a well-defined puriform character. The non-tubercular affection occurs somewhat suddenly, in most instances after exposure, with acute bronchitis or pneumonia.

Moxon ('Path. Soc. Trans.,' xxii, 66) finding in the same lung patches with iron grey centre, but surrounded by zones which differed in character, believes that the case proves the identity of "grey and yellow tubercles." He assumes that these patches grow from within outwards; that the central is the older portion, the peripheral the most recent. The outer zone of one patch presented grey (miliary) tubercles; that of the other "larger, opaque, yellowish-white tubercles of the most scrofulo-pneumonic type." Both kinds "were seated in the proper

pulmonary tissue, and not especially about the ends of the bronchial tubes."

Fox (E. L.) ('Brit. Med. Journ.,' 1871, ii, 463) reviews Niemeyer's assertions, and opposes them generally. He holds that chronic pneumonia, when it is found associated with miliary tubercle, is not connected with it as cause and effect, and that the tubercle is only developed in cases in which the patient has previously had the tuberculous taint of constitution. Further, he insists that it is not unusual to find general (miliary?) tuberculosis without pre-existing cheesy degeneration.

Sommerbrodt ('Virch. Arch.,' lv, 165) has made experiments on dogs to test Niemeyer's theory as to the effect of hæmoptysis in causing phthisis. The blood drawn from the carotid artery of the animals was injected through a wound in their trachea, and they were killed at periods varying from one hour to twelve days after the operation. Some of the experiments and the post-mortem results, as well as the microscopical appearances found in the lungs, are given in full. Both catarrhal and croupous pneumonia followed the injection. At the end of a very long paper the writer comes to the conclusion that his experiments show that the presence of blood in the lungs—hæmoptysis—can provoke a catarrhal pneumonia in subjects predisposed to phthisis. In a note (p. 195) he quotes a case of Waldeyer's, who found in the lungs of a suicide who had divided his trachea, and died three or four days later, the characteristic cells of catarrhal pneumonia in certain portions of the tissue to which the blood had found its way.

Körner ("Beitrag zur Lehre von der Tuberculose," 'Wien. Med. Zeitg.,' 1871, 189) disagrees with Niemeyer's views on cheesy pneumonia and tuberculosis. He thinks the distinction between the two is simply artificial, and cannot be supported by anatomical facts, inasmuch as the two results are almost always found together. In addition to this Niemeyer is unable to say why cheesy pneumonia leads to the development of tubercle in one case and not in another. Körner adopts Rokitansky's views as to the anatomical relations of tubercle, and puts forward the following theory as to its origin:—The normal elasticity of the lung can be preserved only by full respiration, and this needs well-developed inspiratory muscles. The latter are ill-developed in patients of the so-called phthisical habit, and here the deformity is secondary. But, on the other hand, it may be acquired, from anæmia, &c. In either case the apex of the lung obtains less than normal respiratory power, and becomes relaxed. Körner concludes that this collapse leads to abnormal pulsation in the vessels, to changes in the circulation in the vasa vasorum, and thus to altered nutrition of the lung-tissue.

Kennedy ('Dubl. Quart. Journ.,' li, 106) opposes Niemeyer's views on phthisis, supporting the old theory of the pathology and course of the disease. (It is, perhaps, well that the author admits at the very commencement of his paper that his "remarks have been put together somewhat hurriedly."—*Rep.*)

According to the 'Med.-Chir. Rev.' (xlvii, 545) Skoda also criticises the doctrines of Niemeyer. He seems to think that observations, both

on the living and the dead, compel the admission that, whether before or during tuberculosis, hæmorrhage is bronchial and not intra-alveolar. All he can admit is that hæmorrhage may produce serious consequences in a tissue already diseased; for instance, on the internal surface of a cavity, where a little blood may remain and contribute to irritation. He argues that blood itself is not an irritant to the tissues, as is proved by the ease with which blood is absorbed in bruises. Chronic pneumonic exudation is not to be confounded with tuberculosis.* Hæmoptysis is a symptom of the latter, or of the morbid state which predisposes to it.

Duhrssen ("Ueber intermittirende Fieber bei chronischer Lungenschwindsucht und chronischer Lungentuberculose," 'Berl. Klin. Woch.,' 1871, 613) holds that a regular intermittent pyrexia occurring in the course of a chronic phthisis, and in the absence of any other cause, denotes absorption of cheesy products. The occurrence of such pyrexia in a doubtful affection of the lungs probably points to a tuberculous origin, and means directed against the fever have but little effect.

Paul ("Conférences cliniques sur la Phthisie," 'Gaz. des Hôp.,' 1871, 517; 1872, 282) does not add much to the literature of phthisis. He refers to a peculiar discolouration of the skin, similar to that found in Addison's disease, which commences on the forehead, and spreads from the eyebrows down to the mouth, and might be confounded with the affection mentioned, or with the chloasma occurring in connection with uterine disturbance.

C. T. Williams ('Med.-Chir. Trans.,' liv, 95) gives some account of a thousand cases of phthisis seen in private practice, with the object of deducing the amount of influence which the conditions of age, sex, family, predisposition, and origin, exercised on the duration of the malady. The patients belonged chiefly to the upper and middle classes, and each case was at least one year under observation; 625 were males, and 375 females; 41 per cent. of all the cases were attacked between twenty and thirty, 25 per cent. between thirty and forty, 19½ per cent. under twenty, and 13¾ above forty. The average was greater among females than males. Family predisposition was traced in 48 per cent. of the patients; nearly half of the cases had only brothers and sisters affected. The commonest origin in 315 cases were pleuro-pneumonia (143) and bronchitis (118). Hæmoptysis was present in 57 per cent. of the patients; 198 died after an average duration of life of seven years, eight months, and three quarters; of the 802 living, 72 per cent. have regained their health sufficiently to follow their occupations, 28 were still invalids. The author then discusses the views of different writers, and his own statistics on the conditions which influence the duration of the disease.

The same writer (ib., lv, 233) enlarges on three grounds for forming an opinion as to the selection of proper climates for consumptive patients:—1. The alleged immunity of some localities from the disease. 2. The existence in certain localities of atmospheric conditions the reverse of those under which the disease was contracted. 3. The ascer-

* It is simply tiresome to read papers by many writers—of what nation it matters not—no two of whom either agree about or define their meaning of "tuberculosis." —A. B. S.

tained results of certain climates on similar cases. He then gives a statistical account of 251 of the above 1000 cases who at one time or another were submitted to the influence of warm climates for periods varying from one to eleven years. He gives a short description of the climates of different places, and concludes that, comparing the deaths of those who wintered abroad and those who did not do so, there was an extension of four months and a half in favour of the climate cases.

Condie ('Amer. Journ. of Med. Sci.,' lxii, 119) discusses the question of the contagiousness of phthisis, and gives three cases which seem to give more or less probability to this theory. The third case is that of a previously healthy man who died of consumption nineteen months after his wife had succumbed to the same disease.

To the question whether it be proper for consumptives to marry, C. J. B. Williams ('Brit. Med. Journ.,' 1871, i, 164), R. Barnes (ib., 191), and H. Bennet (ib., 295), agree with Virchow in giving a negative answer.

Tait ('Dubl. Journ.,' lii, 317) wishes to substitute the term *myoidema* for the muscular irritability often seen in patients suffering from chest affections, and first noticed by Graves and Stokes. These writers described the appearance, after percussion, of a number of little tumours exactly corresponding to the number and situation of the points of the fingers where they had struck the integuments of the chest. They continued visible for a few moments and then subsided, but could be again made to appear by repeating the percussion. Their appearance seemed to be due to the contraction of muscular fibres, in consequence of the irritation of the blow (factitious urticaria of Gull, &c.—*Rep.*). Tait gives short notes of 117 cases in which he noticed the phenomenon, and a table of 90 other observations in which it was present. Only 26 of his 117 cases died, and he finds one comfort in the fact "that the majority of practitioners have no very accurate notion of how many cases of consumption there are which recover—get well as absolutely as do cases of measles." (The writer gives no physical signs in the majority of the cases, and hints only slightly at the post-mortem appearances in two cases (53 and 55). The whole paper is most careless and dogmatic.—*Rep.*)

Ludwig, "Im Oberengadin entstandene tödtlich verlaufene Phthisis," 'Arch. d. Heilk.,' xii, 494. Hirsch, "Beitrag zur Casuistik der galoppirenden Lungenschwindsucht (käsige Pneumonie)," 'Berl. Klin. Woch.,' 1871, 198. Pilz, "Ein Fall von chronischer Pneumonie mit Gehirntuberculose und Ektasie der Speiseröhre," 'Jahrb. f. Kinderheilk.,' iv, 433. Van der Corput, "Nouveau mode de Traitement de la Phthisie au moyen de l'huile de Foie de Morue saponifiée par la Chaux," 'Bull. Gén. de Thérap.,' 80, 205. Perroud, "De quelques Phénomènes nerveux survenant dans le cours de la Phthisie Pulmonaire," 'Lyon Méd.,' ix, 6. Mayet, "Inflammation des Follicules clos de l'Intestin dans la Phthisie,' ib., 33. Boudant, "De la Phthisie aux eaux de Mont-Dore," ib., vii, 439. Tyson, "Cirrhosis and complete Atrophy of the Left Lung, Cheesy Deposit with Miliary Tubercle throughout the Right Lung" (man, æt. 26), 'Amer. Journ. Med. Sci.,' lxi, 163. Id., (1) "Phthisis, Cavity at Apex of each Lung, disseminated Miliary Tubercle and Cheesy Deposit" (boy, æt. 19); (2) "Phthisis, Cavities, Cheesy Deposit only" (girl, æt. 25), ib., 429. Hutchinson, "Phthisis diagnosticated by aid of the Microscopic Examination of the Sputa" (boy, æt. 19, with autopsy), ib., 153. Condie, "Tubercular Pneumonia," ib., 365. Id., "Hæmoptysis in Consumptive Patients," ib., lxiii, 97. Id., "On Hectic Fever," ib.,

ib., 365. Simons, "Climate and its relations to the Production, Progress, Amelioration, and Cure of Consumption," ib., ib., 82. Bennet (J. H.), "On the Treatment of Pulmonary Consumption by Hygiene, Climate, and Medicine, in its connection with Modern Doctrines," London, 1871. Moxon, "On the Varieties of Tubercle, and the relation of Tubercle to Inflammation," 'Med. Times and Gaz.,' 1871, i, 64. Hartsen, "Two well-known Symptoms of Phthisis; Remarks on their Explanation," ib., ii, 586. Allbutt, "Phthisis as a Neurosis," ib., ib., 613. Russell, "Acute Pulmonary Consumption," ib., ib., 526. Williams (T.), "Case of Contractile Phthisis causing remarkable Displacement of Organs," ib., ib., 732. Ogle, "The Action of Sulphate of Quinine upon the Temperature in Pulmonary Phthisis" (no proportionate modifications of respiration, pulse or heart beat, accompanied the fluctuations), 'Lancet,' 1872, ii, 9. Philipson, "Report of a Case of Phthisis Pulmonalis, accompanied by Ulceration of the Larynx and Plastic Exudation into the Trachea and Bronchi" (man, æt. 30), ib., i, 855. Bradbury, "Notes of a Case of Phthisis ab Hæmoptoe (?), with Remarks," ib., 1871, ii, 602. Broster, "On the Treatment of Phthisis Pulmonalis by Glycerine and Indian Hemp," ib., i, 47. Peacock, "Clinical Lecture on Hæmoptysis," ib., ii, 875. Bradbury, "Case of a rare form of Pulmonary Hæmorrhage, with brief Remarks," 'Brit. Med. Journ.,' 1871, i, 35. Id., "On the Prognostic Value of Hæmoptysis," ib., ii, 259. Waters, "Clinical Remarks on the Treatment of Hæmoptysis," ib., i, 247. Jamieson, "Subcutaneous Injection of Ergotine in Hæmoptysis, ib., 587." Eames, "Hæmoptysis in advanced Phthisis," ib., i, 433. Cotton, "Notes on Consumption," ib., i, 192. Law, "Lungs and Larynx of a man, æt. 44, who died with Phthisis Laryngea," ib., 342. Green, "Aneurism of a Branch of the Pulmonary Artery in a Phthisical Lung," 'Path. Soc. Trans.,' xxii, 37. Powell, "Some Cases illustrating the Pathology of Fatal Hæmoptysis in advanced Phthisis," ib., 41. Squire, "Part of the Upper Lobe of Left Lung, where two years ago signs of Tuberculosis had been arrested by Quinine; also Enlarged Kidneys and Ulcerated Ileum, with large Mesenteric Glands from the same child," ib., xxiii, 35. Greenhow, "Lungs from a Case of Cured Phthisis; Death from Capillary Bronchitis; Cavities lined with False Membrane in both Lungs, Proliferation of Interlobular Connective Tissue and great Thickening of the Pleura," ib., ib., 49. Guéneau de Mussy, "Observations de Phthisie latente," 'Gaz. Hebd.,' viii, 296. Perroud, "Influence de la Variole sur la Phthisie latente," 'Lyon Méd.,' viii, 371. (And see under "Climate.")

D.—*Diseases of the Circulatory System.*

Origin of Cardiac Murmurs, &c.

Jacobson ("Ueber Herzgeräusche," 'Berl. Klin. Woch.,' 1871, 588) remarks that even experienced auscultators find a difficulty in ascertaining the precise coincidence of a murmur with a certain period of the heart's action. The usual attention to the pulsation of the carotid, or to the heart's impulse, is hardly precise enough in the absence of a simultaneous proof obtained by hearing and feeling. To remedy this defect he has invented an instrument, through which the movements of the artery are transmitted by a lever to an electro-magnetic clockwork. The motion of the latter gives an audible signal, which may thus be compared with the normal or abnormal sounds of the heart. The use of this instrument is said to be as easy as that of the ordinary sphygmograph.

Giese ("Versuche über die Entstehung der Herztöne," 'Deut. Klin.,' 1871, 393) has repeated and confirms the experiments of Bayer on the mode of origin of the first sound of the heart. He made use of fresh calves' hearts, in which he removed the left auricle so as to expose the mitral valve, and also cut away the aortic valves. Into the

aorta he introduced a tube ten feet long, with a stopcock. On opening the latter water poured into the ventricle and closed the mitral valves. The stopcock was so constructed (see the original paper) that after the valve had closed it opened again of itself. Auscultation was made with a stethoscope dipped in the water, but not resting immediately on the heart. In this way a weak and dull sound was heard on the closure of the valve, beginning, but not ending, sharply, and in no way whatever like the first sound heard in the living body. In insufficiency of the valve the sound was not heard. In another series of experiments on the semilunar valves a clear clapping sound was obtained, exactly like that of the second sound of the living heart. The conclusion he draws is, that the closure of the mitral valves (during life) does appear to produce a sound, but that this sound is not that of the full first sound of the heart, and that the coming together of the valve plays only a secondary part in the production of the real first sound.

Poore ('Lancet,' 1872, ii, 118) intensifies the cardiac sounds by placing the patient on his back on a wooden bench, applying the end of a stick between the third costal cartilages, and balancing the sounding-box of a guitar, with its aperture towards the thorax of the patient on the other end of the stick.

Hyde Salter ('Lancet,' 1871, ii, 151) calls attention to the existence of auricular pericardial friction, and gives four cases, in three of which, a man, æt. 21, and two women of middle age, a friction-sound was audible at the inner extremity of the third right intercostal space; in a fourth case, in a woman æt. 29, the same murmur, resembling a presystolic one, was limited to a point on the third left rib, about an inch to the left of the margin of the sternum. The autopsies of two, whose death was due to uræmic pericarditis, are given, in proof of the correct diagnosis. In one the left auricle was covered and roughened with lymph, which was confined to the surface of the auricle; in the other, the sound extended down over the ventricles and became general, as did the pericarditis. Attention is strongly drawn to the presystolic character of the sound. In the first case (ib., 251) Salter noticed a curious phenomenon:—One morning the pulse beats and respirations were exactly equal, 58; next day there were two beats to one respiration, and the day following the pulse beats, without any connexion with the respiration, came regularly in "couples." The former peculiarity he had noticed in a few other cases, one of which he gives; and he thinks that the explanation of what he terms "sphygmo-pneumal synchronism" is to be found in an accommodation of the respiratory movements, perhaps without any consciousness on the part of the patient, to the movements of the heart. In both cases recorded there was probably adherent pericardium, or adherence between it and the lung. He gives two further cases, to illustrate the occurrence of "couple-rhythm."

Guéneau de Mussy ('Gaz. des Hôp.,' 1871, 133) gives a clinical lecture on a case of aortic insufficiency. Here the diastolic murmur became gradually feebler, while a loud systolic murmur was developed. He concluded that the abnormal aperture of the valve was gradually being lessened and closed by vegetations, and a gradual stenosis taking

place. His diagnosis was confirmed by the post-mortem appearances found.

Barclay, in some "Remarks on Pre-systolic Cardiac Murmur" ('Lancet,' 1872, i, 283, &c.) inclines to the view that it is one of regurgitation, not of obstruction. He gives the case of a boy, æt. 18, still alive, in whom, without any history of rheumatic, and only of scarlet, fever, a very distinct harsh grating murmur was heard at the apex of the heart, distinctly terminating in the first sound, while the interval between the second and first sounds was preternaturally long. Under the influence of digitalis, this interval became more striking, and it was found that a short soft murmur began almost immediately after the second sound, terminating immediately before the harsh murmur commenced. At the base only the harsher murmur could be heard. He reviews at some length the mode in which the sounds of the heart are produced, and the opinions of different writers on this particular murmur. His own explanation (p. 394) is as follows:—The mitral valve is transformed into a ring, prolonged into a funnel-shape, with a thick inflexible margin, the two flaps being more or less adherent to each other. The thickened ring stands almost permanently open, and the first effect of ventricular tension is to drive blood through the valve, not to close it. But as contraction goes on, the blood presses on the sides of the funnel and impels them against each other, and thus the click of the valves is delayed, because not the edges but the sides have met, not the earlier tension but the later contraction of the ventricle has closed them. As soon as they meet they must more or less arrest the backward current, and we have thus the explanation of the circumstance that the murmur runs up to, and terminates in, the first sound. This, too, explains why the interval before the first sound is longer than usual, because the closure of the valve has been delayed, and the first sound has been thus far postponed. He holds (p. 354) that the thickening of the walls of the auricle, never reaching that of the walls of a thin ventricle, is rather due to a large quantity of blood being driven back into it than to any obstacle to its onward flow; that with no means of closing the entrance of the pulmonary veins, the auricle, in contracting, must empty itself backwards if any obstacle to its onward flow exist; and that (p. 395) the pulmonary congestion and hæmoptysis, as constant with this as with the ordinary mitral systolic murmur, is due to this backward flow of blood upon the lungs.

Balfour (ib., ib., 714) opposes at some length Barclay's views, upholding the generally accepted rhythm of the presystolic murmur.

Davies, in a former paper read before the Royal Society (see last 'Report,' p. 148), had assumed—(1) that the four openings of the heart during the time the blood traverses them are circular in form; and (2) that the area of each orifice is unchanged—constant—during systole and diastole. In another paper ('Lancet,' 1872, ii, 109) he puts forward arguments in support of his assumptions, based on the dissections of Pettigrew, and others, and meets certain objections made to his theory.

De Giovanni ("Nuovo metodo per limitare la regione cardiaca," 'Gaz. Med. Lomb.,' 1871, 261) has marked out with needles the posi-

tion of the heart in a number of bodies. He holds that the assertion that in enlargement of the left ventricle the heart is increased vertically, and in that of the right ventricle is increased in breadth, is not strictly true.

The 'Lancet' (1872, i, 149) contains an abstract of a lecture by Duchek, in which he discusses the origin of the *bruit du diable*. This murmur is modified by the strength of the pulse in the carotids (moments of reinforcement) and by acceleration of the respiration. He holds that it is due to the vibration of the half-opened valves in the bulbus of the jugular vein behind the insertion of the sterno-mastoid, and requires for its production a rapid circulation of blood and a normal pressure of the blood in the thorax. If the latter is increased by valvular failures, emphysema, &c., the murmur is not heard, and hence the general view that this murmur excludes insufficiency of the mitral.

Allbutt ('St. George's Hosp. Rep.,' v, 22) writes on the effects of overwork and strain on the heart and great blood-vessels. He gives the following as the order in which the chronic morbid changes seem to present themselves for consideration:—(1) Dilatation of the right heart, (2) dilatation of the left heart, (3) in reason, if not in time, hypertrophy of the left ventricle, or both ventricles, (4) chronic inflammation of the aorta and aortic valves, (5) dilatation of the aorta, (6) incompetence of the aortic valves, with (7) further compensatory hypertrophy of the left ventricle, (8) loss of compensatory hypertrophy, with consequent rapid failure, and often with consequent mitral regurgitation. This order of succession may be complete, or may present these variations among others, that after the fourth stage the inner coats of the aorta may and often do give way, or aortic incompetence takes place. He meets with simple dilatation and hypertrophy so constantly in patients who have been subjected to over-exertion that he places them together, unhesitatingly, as the beginnings of mischief. He further examines into the facts which bear upon the above assertions, giving sphygmographic tracings of different cases. In several cases he has been tempted to attribute phthisis to hæmorrhage into the lung; it is at least remarkable that many of those suffering from pulmonary phthisis seem to have enjoyed good health up to the time when from some cause or other hæmoptysis occurred (cf. 'Med. Times and Gaz.,' 1871, i, 565).

Stone ('New York Med. Rec.,' vi, 36) feels quite certain that a large proportion of diseases of the heart may be warded off or very much mitigated. A large proportion of heart diseases arise from inflammation, which occurs mostly in the young, and a much larger number than is supposed begin purely as functional derangements, which, if not relieved, lead on to dilatation, insufficiency of the valves, and all the consequences of obstructed circulation through the organ. He lays stress upon not waiting for a friction sound or murmur, for instance in the rheumatism of children, but exhibiting drugs at once. His remarks on functional derangement contain nothing new.

Snelling (ib., 6) gives short notes of twenty cases in which the subclavian bellows-murmur was heard. He gives a table in which the cases

are analysed, and concludes that in certain cases, "when the deposition of tubercle is too slight to give rise to physical signs . . . . . the murmur, taken in connection with emaciation and cough, may be looked upon almost as pathognomonic" of phthisis.

Gray ('Brit. Med. Journ.,' 1871, ii, 94) refers shortly to three cases occurring in his own practice, of phthisis, strumous diarrhœa, and bronchitis after measles, in which death from coma was preceded by a fall in the frequency of the pulse.

Brunton ('St. Barth. Hosp. Rep.,' vii, 216) has made several experiments on the effect of temperature on the rabbit's heart while it still remained in the body, sometimes leaving all its nervous connections untouched, and sometimes dividing the vagi. These experiments were made by narcotising the animal with opium or chloral, and laying it in a tin vessel well padded with cotton wool. The vessel was double, and by pouring hot water into it, the temperature of the rabbit was gradually raised. The belly of the animal was also covered with cotton wool, sometimes with an india-rubber bag containing hot water. To make respiration easier, a canula was introduced into the trachea, and the inspired air passed over warm water. The pulsations of the heart were counted by pushing a fine needle through the thoracic walls into the heart, so that it vibrated with each pulsation, and connecting its outer end by means of a fine thread with the lever of one of Marey's cardiographs. By this means it is possible to count the pulsations, even when the heart is beating at the rate of 470 in a minute, as it did in one case. The temperature was taken with a thermometer in the rectum. He gives a table, from which it is seen that the heart beats more quickly as the temperature rises till it reaches its maximum, and then becomes slower, and finally stops. The increase in the number of beats is not the same for each degree of rise in the temperature, and the number of beats at the same temperature, and also the same amount of quickening for each degree of rise of temperature, differs in different animals. The upper limit at which the heat stands still varies in different animals, but in the stronger ones it is between 113° and 114° F., or even above it. In some of the experiments the power of the vagus was tested from time to time by irritation with an induced current, and from its persistent power the writer concludes that in the rabbit, and probably other mammals' hearts, a temperature sufficiently high to produce stoppage of the heart does not paralyse the vagus or the inhibitory apparatus through which it acts. He is inclined to reject Weikart's hypothesis, that death from heat is due to coagulation of blood in the vessels, and to agree with Bernard in finding its cause in impairment of the muscular power of the heart by the heat.

Habershon ('Lancet,' 1871, i, 333) writes on the relief of nocturnal dyspnœa arising from disease of the heart, and groups it into three classes. In the first class are cases of failing power of the heart's action from loss of blood and from sudden shocks to the nervous system. In these cases the action is feeble and often irregular, and the best treatment consists in the administration of nourishment, the proper use of stimulants, and afterwards the employment of steel, with nar-

cotics if sleeplessness or pain be present. In a second class the cardiac disease consists in imperfection of the mitral valve, and its necessary results; here the treatment is to be directed to the lungs, liver and kidneys; narcotics have only a transient benefit, often followed by increased distress. In a third class the dyspnœa is produced by failing muscular power of the heart, due to degeneration of its muscular fibre, atheroma of the vessels, idiopathic anæmia, disease of the aortic valves and dilatation. Here stimulating narcotics should be used—spirit of chloroform, camphor, senega, ammonia and Indian hemp. The paper contains suggestions as to the general dietary regulations to be followed, and concludes with the writer's experience of various drugs employed by himself.

Hering, "Ueber den Einfluss der Athmung auf den Kreislauf," 'Wien. Med. Jahrb.,' 1872, 37. Kolisko, "Beiträge zur Kenntniss der Mechanik des Herzens," ib., 87. Beneke, "Ueber die Lumina der Arterien, deren grosse Verschiedenheit und deren Bedeutung fur die Entwicklung von Krankheiten," 'Jahrb. f. Kinderkr.,' iv, 380. Jacobson, "Ueber Herzgeräusche," 'Berl. Klin. Woch.,' 1872, 1. Lender, "Zur Behandlung Chronischer Herzkrankh.," ib., 1871, 260. Garrod, "On the Mutual Relations of the Apex Cardiograph and the Radial Sphygmograph Trace," 'Proc. Roy. Soc.,' xix, 318. Jaccoud, "Indications de la digitale dans les Affections Cardiaques et du Traitement de l'Asystolie," 'Gaz. des Hôp.,' 1871, 5. Morgan, "Cardiac Lesions consequent on Syphilitic Cachexia" (gummata in heart), 'Dublin Quart. Journ.,' lii, 42. Fothergill, "The Treatment of Heart Disease," 'Edin. Journ.,' xvii, 776. Wilks, "Note on the History of Valvular Diseases of the Heart," 'Guy's Hosp. Rep.,' xvi, 209. Shapter, "Notes and Observations on Diseases of the Heart and Lungs," 'Brit. Med. Journ.,' 1871, ii, 522, 1872, i, 7. Williams, "On Triple Sounds of the Heart," ib., 1871, ii, 788. Gairdner, "Clinical Observations in the Glasgow Royal Infirmary" (Vanishing murmur), ib., 1872, i, 334. Johnson, "Heart Disease," 'Med. Times and Gaz.,' 1871, ii, 790. Silver, "On Functional Regurgitant Bruit," ib., i, 361. Gray. "Unilateral Anæthesia without impairment of Motor Power, occurring suddenly in the subject of Heart Disease," ib.. 246. Laccassagne, "Des Complications Cardiaques dans la Blennorrhagie," 'Arch. Gén.,' 1872, i, 15. B. W. Foster, "Digitalis and Heart Disease," 'Med.-Chir. Rev.,' xlviii, 214.

Embolism, Thrombosis, &c.

Wrany ('Oesterr. Jahrb. f. Paediatrik,' 1872, 12) gives the case of a boy, æt. 9, in whom endocarditis was followed by hemiplegia, aphasia, and hemichorea. The autopsy showed fatty degeneration of the heart, disease of the mitral valve, adherent pleura on both sides, pneumonia of the right upper lobe, œdema of the lung, embolism of the left middle cerebral artery, with consequent softening of the corpus striatum and lenticular nucleus; infarcta of the kidneys and spleen; hæmorrhagic erosions in the stomach, and catarrh of the large intestines.

Murchison ('Trans. Path. Soc.,' xxii, 119) records the case of a girl, æt. 14, who had for years suffered from chorea, with mitral deficiency. While lying in bed she became suddenly unconscious, and had occasional muscular twitchings of the right limbs. The right pupil was contracted, the left dilated, both immovable. In addition to vegetations on the mitral valve were found embolic masses in the spleen and kidneys, and the left vertebral and left carotid artery were much distended, hard, and completely blocked by a pale, firm, easily detached

clot. No embolisms of the minute vessels such as have been described after death from chorea were found.

Bernhardt ('Virch. Arch.,' lv, 241) publishes the following very interesting case:—A boy, æt. 19, had suffered for some years with severe headache and vomiting, which occurred regularly every three or four weeks. Later he had rheumatic pains and palpitation. One morning, in spite of the headache, he went to work, but an hour later was compelled to take to his bed, and almost immediately afterwards became completely paralysed on the left side, without any loss of consciousness, pain, or other antecedent symptoms. Auscultation gave the signs of insufficiency of the aortic valves and stenosis of the mitral (absence of the aortic diastolic sound, and marked presystolic murmur). After death the right middle cerebral artery was found completely blocked by a firmly adherent body which extended into the artery of the corpus callosum. The left middle cerebral artery was blocked, but not completely, in the same way. The whole of the brain substance was anæmic, the greater part of the lenticular nucleus and posterior half of the corpus striatum on the right side was in the condition of yellow softening. The mitral valve was slightly thickened, and had an opening of the size of a cherry-stone in its anterior curtain. The aortic valves were adherent, atrophied, and dragged downwards, and on their surface corresponding to the defect in the mitral valve was a chalky, irregular, warty body, 2½—3 cm. long, covered with fresh coagula, which almost blocked the opening from the aorta. (A plate is given.) Both kidneys, especially the right, contained infarcta; the branches of the renal artery were completely obstructed by bodies similar to those in the vessels of the brain. Bernhardt remarks shortly on the case as it bears upon the diagnosis made, and refers to a case recorded by Moxon (see last 'Report,' p. 160).

Luneau ('Gaz. Méd.,' 1871, 54) gives two cases in which the left vertebral artery was obliterated. Both cases occurred in the clinique of Proust, within a few days of each other. The first patient was a woman, æt. 68, who five months before had had an apoplectiform attack, followed by hemiplegia, from which she completely recovered. On the day of her admission into hospital she suddenly felt a weakness of the left side, and lost all power of speech, though she preserved her consciousness. On admission there was incomplete paralysis of the left side of the face and body, with hyperæsthesia of the arm and leg; complete aphonia and dysphagia; the intellectual power was perfect; the tongue was pushed to the left side, and its movements embarrassed; the velum was completely insensible, and the muscles of the pharynx also paralysed. She passed her urine involuntarily; on the seventh day she died. At the post-mortem examination the basilar and right vertebral arteries were atheromatous, but their canals free. The upper end of the left vertebral was obstructed by a slightly decolourised clot, distant about half a cm. from the basilar. The posterior and inferior cerebral arteries were also obliterated. Charcot examined the portions of the medulla oblongata nourished by these arteries, and the left lobe of the cerebellum, and found them in a condition of ischæmic softening. The left kidney alone showed any trace of infarctus, and in spite of any

evidence gained elsewhere, the author concludes that the original cause must have been embolism. The second case was that of a man, æt. 63, who had been much addicted to drink. On the evening before his admission into hospital he was suddenly attacked with vomiting and inability to swallow. On his admission there was general muscular weakness, but complete intelligence and liveliness. There was complete loss of power to swallow, though the velum contracted well. There was tremor, but no paralysis of the upper extremities, slight hyperæsthesia of the lower; he tottered if he attempted to stand, and showed a tendency to fall towards the left side. Next day he died. The valves of the heart were found thickened and atheromatous, as also the arteries at the base of the brain. One centimètre from its opening into the basilar the left vertebral artery was completely obstructed by decolourised, yellowish clot. No traces of infarctus were found in any of the abdominal organs. Charcot remarks on the cases, that the symptoms observed were extremely similar to those seen in labio-glosso-pharyngeal paralysis.

King, "A Case of Aortic and Mitral Valvular Disease, with Extensive Infarction of the Spleen and Cerebral Softening" (man, æt. 32), 'Path. Soc. Trans.,' xxiii, 63. Id., "Aneurism of the Aorta associated with Fracture of the First Rib, and Embolism of Left Middle Cerebral Artery" (man, æc. 42), ib., 70. Mollière, "De l'Embolie des Artères Mésenteriques, études critiques et bibliographiques," 'Lyon. Méd.,' viii, 691. Ramskill, "Thrombosis of Right Iliac Vein, Embolism of Pulmonary Artery, Sudden Death" (man, æt. 35), 'Med. Times and Gaz.,' 1871, i, 660. Merkel, "Cheyne-Stokes'schen Respirationstypus mit Pendel-bewegungen der Augäpfel. Rheumatische Endocarditis; Encephalitis in Folge von Embolie der Arteria fossæ Sylvii dextra" (girl, æt. 22), 'Deut. Arch.,' x, 201. Schmid, "Zur Differentialdiagnose von Apoplexie und Embolie des Gehirns," ib., 305. Cohnheim, "Untersuchungen über die Embolischen Processe," Berlin, 1872, pp. 112 (reviewed, ib., 316).

Pericarditis.

Wilks ('Guy's Hosp. Rep.,' xvi, 196) writes on adherent pericardium as a cause of cardiac disease, and discusses the different views held by Hope, Corvisart, Barlow, Chevers, &c. He holds it probable that loose cellular adhesions have no appreciable influence on the action of the heart, but that the thickened pericardium of a cartilaginous consistency, investing the heart closely, arising from an inflammation at an early period of childhood, does lead to obstruction of the circulation, and then to dropsy, after the manner of heart disease. The condition of adherent pericardium cannot be regarded as a rare one. He gives six cases in which death was apparently due to this affection, and is almost inclined to offer the proposition, that in a well-marked case of disease with cardiac symptoms in young persons without any valvular bruit pericardial adhesions may be fairly expected. In older persons, of course, we should look rather to degeneration of muscular tissue. Of the cases recorded in this paper, five were males, aged respectively 21, 9, 12, 26, and 24; the other is that of a girl, aged 16. The symptoms common to all were dyspnœa, cyanosis, dropsy; in none was any bruit heard; in all the pericardium was universally and closely adherent. (The first case has been recorded already by Barlow, 'Guy's Hosp. Rep.,' ser. 3, xi, 437.—*Rep.*)

Glover ('Lancet,' i, 893) records the case of a girl, æt. 12, who had complained of pain in her left side for two or three weeks. Her temperature seven days before death was 101°. No physical signs seem to have been made out. The autopsy showed the pericardium distended with pus, and purulent lymph adhering to its inner surface.

Frémy, "Pericardite. Épanchement de Sérosité purulente. Ponction avec l'Appareil du Dr. Dieulafoy, Guérison" (man, æt. 21), 'Bull. Gén. de Thérap.,' t. 81, p. 125. Thiriar, "Péricardite, avec Epanchement considérable et brides adhésives, suite d'Affections Rhumatismales" (boy, æt. 16, autopsy), 'Presse Méd. Belge,' 1871, 32. Heaton, "Rheumatic Pericarditis with Effusion, Recovery" (man, æt. 21), 'Brit. Med. Journ.,' 1871, ii, 96. Thorowgood, "Pericarditis with Effusion, Death" (boy, æt. 10, autopsy), 'Lancet,' 1872, i, 682.

Diseases of Myocardium; Heart Aneurism, &c.

Quain ('Lancet,' 1872, i, 391) thinks that affections of the walls of the heart have been somewhat neglected in the attention paid to valvular affections. He holds that clinical study of the former teaches that—(1) the really serious effects of heart disease result from hypertrophy, or from dilatation, or from a combination of the two; (2) valvular diseases may exist up to the close of a long life without rendering the subject of them conscious of their presence; (3) it is possible to refer to cases in which, valve disease having existed without causing any inconvenience, something occurs which damages the condition of the muscular walls, and serious disturbance is the result; (4) there are cases in which some additional mischief occurs to valve disease already existing, and this mischief is remedied by the supervention of further compensatory hypertrophy; (5) the converse of the last class is seen in cases of valve disease in which the heart walls fail and the disease progresses; (6) cases occur in which valvular disease—*i. e.* incompetency—is caused by dilatation of the heart. Enlargement of this organ may depend—(*a*) on an increase in the muscular fibres, the exact change being still unknown; (*b*) on an increase in the connective tissue, due to chronic interstitial inflammation or hyperplasia; (*c*) on an increase of fat, not to be confounded with fatty degeneration. The *causes* of enlargement of the heart may be classified as—agencies acting through the nervous system, as overstrained excitement; agencies acting mechanically, as severe and repeated muscular exertion, obstructed circulation, pregnancy; agencies originating in disordered conditions of the nutritive functions of the heart, as chlorosis, anæmia, good living with insufficient exercise, Bright's disease, adherent pericardium. The author proceeds to discuss (ib., 426) the systemic effects of enlargement, and the relation of heart disease to phthisis and renal disease, and the second lecture concludes with the diagnosis and treatment of it. In simple muscular hypertrophy, repose, and the administration of aconite; in connective-tissue hypertrophy, if diagnosed in its early stage, remedies likely to subdue the inflammation in which it originates; and in fatty hypertrophy, treatment calculated to prevent the formation of fat, are recommended; and to obtain compensatory hypertrophy, iron and digitalis. In a third lecture (ib., 459) he enlarges on

fatty degeneration and rupture (see under that head). He then describes aneurism of the heart, the walls of which are formed of the thin and altered cardiac walls, all the layers of which may be detected near the base, but in many cases over the rest of the wall the muscular layer has disappeared. Occasionally bony plates are found in the sac. This affection seems to occur with nearly the same frequency at different ages, but always with a marked preponderance of males in the cases collected. It may originate in inflammation, fatty degeneration, or the bursting of an abscess. The lesion is most frequently seated at the apex, and is not accompanied by any special symptoms.

Fothergill also discusses ('Brit. Med. Journ.,' 1872, i, 236) the subject of hypertrophy and dilatation. As to its mode of origin, "as some name must be used to cover what we do not know, hypertrophy may be called a trophic action of the cardiac ganglia," by which the heart resists dilatation. He thinks that in time it may be possible to demonstrate that it is the consequence of an increased blood supply to the muscular structure, dilatation of the coronary vessels, and secondary elongation of the heart-fibres.

Thompson ("Distrain of the Heart," 'St. George's Hosp. Rep.,' v, 119) records three cases, to show that dilatation of the heart is not always a chronic disease, but may arise suddenly and from an accidental cause. Two of these occurred in men, æt. 23 and 28, and the other in a girl, æt. 19. The post-mortem appearances are given in the first two cases, the last one recovered. He has seen seven of these cases altogether, and of the whole number three made a good recovery, the constitutional disturbances passing away, though the heart remained permanently injured.

Smith ('Brit. Med. Journ.,' 1872, i, 597) showed to the Pathological Society of Dublin the heart of a young man, æt. 22. He had caught cold some time before his admission into hospital; œdema of the feet, general anasarca, and cyanosis followed. The area of præcordial dulness was increased; there was no murmur, but the first sound of the heart was doubled, and ultimately the action of that organ became strikingly vermicular. The left half of the tongue became swollen, and the patient died rather suddenly. The pericardium contained half a pint of serum; there was no recent pericarditis; the heart was much dilated, but its valves were normal. The right auricle was much enlarged, but not hypertrophied.

Wagstaffe ('Path. Soc. Trans.,' xxii, 12) records a case of fibrous tumour of the heart. The specimen had been lying in pickle for fifteen years before it came into his hands. The patient from whom it was taken was a female child, æt. 3 months, which seems to have died from convulsive fits. At the post-mortem it was found that the pericardium was distended with a quantity of pinkish serum. The heart was greatly enlarged, its shape elliptical, the apex nearly as large as the base, and on one side of this, towards the right ventricle, the muscular structure appeared to be thinned, and presented an almost tendinous appearance. The cavities of both auricle and ventricle were diminished by the projection into them of the septum, in which could be felt a tough inelastic mass. On cutting down upon this it was found

to be a pinkish-white tumour, fully the size of a hen's egg, lying between the muscular layers of the septum, which it had dissected from one another from base to apex. This distension had given rise to the thin and tendinous appearance of the heart-walls when seen from the outside. Wagstaffe discusses shortly the structure of this tumour, and remarks on the rarity of simple tumours of the heart.

Payne (ib., 125) gives the autopsy of a woman, æt. 41, who presented during life the signs of malignant disease of the liver. Within the right auricle, in the corner of the appendage, was a small nodule of new growth the size of a pea, projecting into the cavity among the trabeculæ; a similar nodule was found in the apex of the left ventricle. These masses were of a whitish colour, and on microscopical examination presented very definite cancerous structures. Inside the iliac veins, just at their junction, but more in the left than in the right, was a mass resembling a blood-clot, but of a peculiar pinkish colour and spongy texture. Sections of pieces hardened in chromic acid showed a network of organized tissues enclosing areas of red blood-corpuscles. There were further considerable masses of undoubtedly cancerous growth in various organs, especially the liver, in the lymphatic glands, and the lumbar vertebra. The author remarks on the rarity of cancer of the heart, and holds that in this case it cannot be clearly decided that there was any mechanical transference of the disease from the veins to the heart.

Goodfellow (ib., xxiii, 53) publishes the case of a man, æt. 48, who for some months before death had suffered from palpitation, dyspnœa, and pain in the cardiac region, which gradually increased in severity. There were symptoms of valvular affection produced, as was found after death, by vegetations on the aortic valves, and ulceration of the one corresponding to the anterior flap of the mitral. Between them was an aneurismal sac, of a conical form, passing upwards between the posterior wall of the aorta and the left auricle, which it compressed; it then curved forwards, and terminated in a rounded end projecting into the pericardium. Its walls at this part were as thin as tissue-paper, quite transparent, and evidently on the point of giving way.

Murchison (ib., 54) gives a case of aneurism of the left ventricle in a woman, æt. 63, the subject of contracted kidneys. At the inner edge of the mitral valve, and slightly behind the posterior flap, was a pouch in the muscular wall, which would have admitted a cherry; at the bottom of this was a rounded opening, the size of a pea, which led into a sac as large as a small orange situated in the posterior wall of the left ventricle, and in the intraventricular septum. It protruded slightly into the right ventricle. At its upper and back part the walls were formed by thickened pericardium.

Townsend (ib., 96) describes an aneurism of the left ventricle in a healthy man, æt. 42, who died from the effects of an accident. Here there was at the apex of the ventricle a bony tumour very much resembling, both in appearance and size, the half of a hen's egg. In sawing through it a cavity was found opening by a small circular orifice into the left ventricle, and containing blood.

Crisp (ib., 87) records the occurrence of three abscesses in the left

cardiac wall, in a child æt. 4 years, who died from pyæmia. He also adds a table of forty-two cases of the latter disease, to be found in the 'Path. Soc. Trans.'

Coats ('Glasgow Med. Journ.,' iv, 433) records two cases of calcareous infiltration of the muscular fibre of the heart. In the first case the salts of lime, probably composed entirely of the phosphates, had been deposited in the fibre in the form of minute round granules, giving the appearance both to the naked eye and under the microscope of fatty degeneration. The patient, a man who died of fever, presented signs of chronic bronchitis and emphysema, with probably some syphilitic taint. In the second case, one of relapsing fever and pyæmia, the muscular fibres were converted into cylinders having a considerably crystalline texture. The lime salt was deposited in a minutely granular form, and consisted in great part of carbonate of lime, which effervesced on the addition of hydrochloric acid.

Endocarditis.

Peacock ("On the Prognosis in cases of Valvular Disease of the Heart," 'St. Thom. Hosp. Rep.,' 1871, 233) regards incompetency of the valves as a more serious defect than obstruction, and incompetency of the aortic more dangerous than that of the mitral valves. On the other hand, obstruction of the mitral is apparently a more important defect than constriction of the aortic valves. He reviews the general questions of diagnosis and treatment at some length.

Fagge ("On the Murmurs attendant upon Mitral Contraction," 'Guy's Hosp. Rep.,' xvi, 247) writes with special reference to the presystolic murmur. The paper contains histories, more or less full, of sixty-six patients, arranged in three groups; seven in which the murmur was heard during life and mitral contraction found after death, forty cases in which the latter condition was found without any presystolic murmur being heard, and nineteen in which the murmur was heard but no autopsy made. He gives also two cases in which a peculiar murmur was audible, and in which he diagnosed mitral contraction.

Heiberg ('Virch. Arch.,' lvi, 407) refers to a case of ulcerative endocarditis published by Winge, and described by him as "mycosis endocardii." The patient, a man æt. 44, had had an ulcer on one of his toes, pains in his joints and rigors. The autopsy, which Heiberg gives, showed vegetations on the valves of the heart, and the microscope revealed the presence of numerous fungi in the vegetations, and also in the emboli found in the renal and other arteries. Winge referred their probable origin to the ulcer on the toe. Heiberg records a case of the same kind occurring in his own practice, in a pregnant woman, æt. 22. During life she had rigors and pains resembling rheumatic pains. She had also sores on the sacrum. After death, in addition to these gangrenous ulcers, the autopsy showed ulcerative endocarditis of the mitral valve, with thrombi containing fungi; infarcta of the spleen and kidneys, with metastatic abscesses in the latter. He looks upon the fungus as Leptothrix; but Virchow, in a note to the paper, though

accepting the main facts, does not agree with this view. Inoculation experiments were made from both cases, but without any results.

Müller ('Deut. Arch.,' 1872, 1) describes the case of a woman dying from mitral insufficiency, in whom after complete cessation even of the slightest respiratory movement the heart-sounds and the pulse in the carotids could be distinguished after the lapse of seven minutes. Pulsation was perceptible in the jugular veins fourteen minutes after the last sign of breathing. In addition to the mitral mischief, the autopsy revealed tubercular meningitis of the base of the brain.

Simon ('Berl. Klin. Woch.,' 1871, 437) gives the case of a boy, æt. 16, who suffered five weeks before death with dyspnœa, palpitation, rigors, convulsions, and loss of consciousness. The area of heart's dulness was increased, the heart-sounds muffled, but unaccompanied by a murmur. Shortly before death there was an eruption of petechiæ. At the autopsy were found the following:—Numerous extravasations on the pia mater; numerous points of red softening in the brain, most marked in the left temporal lobe; several arteries corresponding to these places were found blocked with emboli. There was sero-fibrinous inflammation of the pericardium, which exhibited numerous ecchymoses and miliary tubercles. On opening the left ventricle was found an "aneurism of the mitral valve," which is described in full in the text. There were numerous ecchymoses on the pleura, and several embolic infarcta in the myocardium, both kidneys, mesentery, &c.

Whipham ('Trans. Path. Soc.,' xxii, 117) gives an interesting case of diseased tricuspid valve in a man, æt. 55. Its free edge, as well as the chordæ tendineæ, were ragged and eroded from ulcerative processes. The valve was thick, opaque, of a dull red colour, contrasting strongly with the transparent and glistening appearance of the mitral. The other post-mortem appearances were pleurisy and hæmothorax; disintegration of the right lung; cirrhosis of the liver; coarse and congested kidneys. In the absence of any origin for blood-poisoning, the writer thinks that pyæmia was the cause of ulceration of the valve and of the pneumonia.

Peter ('L'Union Méd.,' xii, 662) gives a very full lecture on aortic insufficiency. After giving the physical signs of the affection, he insists that it is generally a disease of the aorta, and not of the heart. The pain behind the sternum, the angina pectoris, and the sudden death, which often accompany it, point to the disease of the vessel, not to the incompetent valves. He divides cases of aortic insufficiency into two classes, those with and those without diseased aorta, the latter being by far the most common. The disease consists in the atheromatous degeneration and the inflammation of the coats of the vessel, with their consequences. Old age, abuse of drink, and gout, are the chief originating causes. The other form of aortic insufficiency is caused by affections such as rheumatism, &c. The rôle which the aorta plays can be easily recognised by the pain and angina caused by the participation in the mischief of the cardiac plexus, by the hard radial pulse, and the arcus senilis, and especially if there have been antecedent gout or chronic alcoholism. After remarking on the sudden death which frequently occurs in the affection, and the shares taken in the mechanism of it by

the disease of the aorta and the cardiac plexus, he speaks of the morbid series formed by angina, aortitis, and aortic insufficiency, and in conclusion he holds that the hypertrophy which generally follows insufficiency is not to be looked on as a compensatory and helpful process, but as a complication of the worst kind, aggravating the patient's condition.

Riegel ('Deut. Arch.,' viii, 129) in a case described by him, recognised the symptom to which Duroziez first drew attention as found in aortic insufficiency—a double sound in the femoral artery. In this case a double sound, not a blowing murmur, was audible in both femoral arteries. With Traube he thinks it is characteristic of a very advanced stage of insufficiency; at the same time an elastic state of the arterial walls, and great hypertrophy of the left ventricle, are necessary requisites for the production of the symptom in question. Consequently, it is better heard in young people with healthy vessels and true hypertrophy of the left ventricle, while it disappears, or is diminished, in extensive atheroma of the artery and fatty degeneration of the heart.

Paul ('Union Méd.,' xii, 716) writes a very long paper on stenosis of the pulmonary artery after birth, its symptoms and complications, and the pulmonary phthisis which frequently succeeds it. The paper is based on twenty-seven observations. He discusses the modes in which it may occur, the almost constant secondary hypertrophy of the right ventricle, the insufficiency as well as stenosis of the pulmonary valves, and the affections of other valves of the heart which may accompany it. Its characteristic symptom is a systolic, more or less rasping murmur, heard over the origin of the pulmonary artery, and in its direction. Cyanosis is not a consequence of this stenosis.

Pepper, "Ulcerative Endocarditis, Embolism of Kidneys" (man, æt. 30, no autopsy), 'Amer. Journ. Med. Sci.,' lxi, 431. Padova, "Endocardite Ateromatosa, insufficienza e stenosi della mitrale; essudato pleurico recidivante; accessi d'asma accompagnati da furor uterino in donna di 68 anni," 'Gaz. Méd. Lomb.,' 1872, 197. Balfour, "Clinical Lectures on Diseases of the Heart, (1) On the Murmurs and other physical signs distinctive of Mitral Stenosis," 'Edin. Journ.,' xvii, 431. Beveridge, "Case of Direct Mitral or Presystolic Murmur" (girl, æt. 17, autopsy), 'Brit. Med. Journ.,' 1871, ii, 353. Habershon, "Heart Disease" (two cases—1, man, æt. 30, with aortic insufficiency, &c.; 2, boy, æt. 11, with mitral obstruction and insufficiency, embolism), ib., 710. Haydeu, "Cardiac Hypertrophy, Pericarditis, Mitral and Tricuspid Constriction and Inadequacy, Aortic Obstruction and Reflux" (man, æt. 23), ib., i, 91. Sieveking, "Case of Hypertrophy of the Heart, with Double Tricuspid (?) Murmur," ib., 62. Allbutt, "Tricuspid Regurgitation" (man, æt. 55, autopsy), ib., 63. Fitzgerald, "Visible Pulsation of the Arteria Centralis Retinæ in a Case of Incompetency of the Aortic Valves," ib., ii, 723. Johnson, "A Lecture on Disease of the Valves of the Heart," ib., 1872, i, 34. Duckworth, "Case of Heart Disease with Loud Musical Murmur, which passed away," ib., 1871, ii, 667. Gray, "Endo- and Peri-carditis without Affection of the Joints, following Subacute Rheumatism, after a five weeks' interval of obscure febrile symptoms," 'Med. Times and Gaz.,' 1871, i, 41. Powell, "Case of Mitral Obstructive Disease (funnel mitral) terminating fatally, with cerebral complication; with remarks on this form of heart disease," ib., 395. Salter, "Double Aortic Murmur, Bulging of Axilla from Hypertrophous Elongation of Heart, Absence of Regurgitant Pulse," &c., ib., 539. Loomis, "Interesting Cases of Cardiac Diseases," 'New York Med. Rev.,' vi, 328. Sparks, "Disease of Tricuspid and Pulmonary Artery Valves, without Affection of the Left

Heart" (man, æt. 27, probable congenital stenosis of pulmonary artery), 'Lancet,' 1871, ii, 13. Traube, "Ueber den Doppelton in der Cruralis bei insufficienz der Aortenklappen," 'Berl. Klin. Woch.,' 1872, 573. Paul, "Rétrécissement de l'Artère pulmonaire" (man, æt. 36, rheumatic fever ten years before), Gaz. Hebd.,' viii, 431. Peacock, "Extensive Disease of Heart of long duration, Obstructive and Regurgitant Disease of the Mitral Valves, and Obstructive Disease of the Aortic Valves" (boy, æt. 17), 'Trans. Path. Soc.,' xxiii, 59. Id., "Obstructive and Regurgitant Disease of the Aortic Valves and Regurgitant Disease of the Mitral, Albuminuria, Bloody Tumour of Thigh" (man, æt. 20), ib., 61. King, "A Case of Aortic and Mitral Valvular Disease, with extensive Infarction of the Spleen and Cerebral Softening" (man, æt. 32), ib., 63. Kelly, "Acute Chorea associated with Valvular Disease of the Heart" (girl, æt. 9, vegetations on tricuspid and mitral), ib., 95. Black, "The Relative Frequency of Disease between the Right and Left Sides of the Heart," &c., 'Lancet,' 1872, ii, 253.

Rupture of Heart.

Quain, in his third Lumleian lecture ('Lancet,' 1872, i, 459) discusses fatty degeneration of the heart and rupture. Out of 88 cases of the latter, 63 occurred in persons over 60 years of age, 33 between 60 and 70, and 24 between 70 and 80. The two sexes are affected with equal frequency.* Out of 100 cases death was sudden—*i. e.* within one or two minutes—in 71. One patient, however, lived eight days, one six days, one three days, and five lived over 48 hours. The seat of rupture in 100 cases was 76 times in the left ventricle (45 in its anterior wall); 13 in the right ventricle (9 in its anterior wall); seven times in the right, and twice in the left auricle; four times in the septum. The heart had undergone fatty degeneration in 77; in 6 it was "softened;" in one case the rupture was due to the bursting of an aneurism, in one to an abscess. In 12 the heart was said to be healthy or not examined, but in most mention is made of endocarditis or changes in the coronary artery.

Barth ('Arch. Gén. de Méd.,' xvii, 5) bases a paper on "spontaneous rupture of the heart" upon 24 cases recorded in the 'Bulletins de la Société Anatomique' during the forty years between 1826 and 1865. Of these 7 were men and 17 women. Only two were under 60 years of age, the rest were between the ages of 60 and 84. The following were some of the apparently determining causes of the rupture:—Vexation or anger, an over-large meal, brandy taken in the coffee, the effort of getting into bed, and in five cases the effort of defecation. In the majority of cases death was sudden. In all the cases, without exception, the rupture was in the *left ventricle;* in nine cases it was situated about the middle of the heart, in four near the base, and in eight near the apex; its average length was about 2 centimètres, with generally irregular ecchymosed borders. In one case only is the heart stated to have been healthy, but in this case the coronary arteries were ossified and diminished in calibre. In all the other cases the heart presented circumscribed infiltrations of blood, ecchymoses, and soft and

* This seems more like the truth than the statement made by some other writers, according to whom rupture of the heart is more common in males than females. The abstracts in the text show twenty-one cases in the latter against twelve in the former.—A. B. S.

flabby muscular tissue; in most of the cases it was covered by an abnormal amount of fat, and the fibres of the muscle had themselves undergone fatty change. The arteries, in the cases in which they were examined, were ossified, or contained calcareous plates in their walls. In one case the mitral was affected; in a great number of cases the aorta was diseased. Barth looks upon the interstitial hæmorrhages into the walls of the heart and the fatty change in its muscle as the two principal pathological facts of the affection. He mentions, as rare occurrences, ruptures of the heart from the presence of a coronary aneurism and of hydatids. He thinks it probable that the rupture occurs at the commencement of the systole, when the heart has to exert its greatest amount of energy. The most characteristic phenomena of its occurrence are syncope, a feeling of suffocation and anxiety, and of very violent pain at the lower left portion of the sternum and mammary region. Death occurs, not from the loss of blood, but from compression of the heart by the effused blood. Treatment of rupture of the heart is, of course, useless; but, in the way of prevention, something may be done by carefully watching old people, in whom the hard radial artery suggests disease in the cardiac capillaries, by recommending moderation in the use of alcoholic drinks, regular diet, abstinence from fat-forming materials; moderate exercise, without muscular effort or fatigue. Should any symptoms arise which threaten partial rupture of the heart the patient must be kept in bed, and drugs administered which diminish the action and so favour the gradual cicatrization of the muscular tissue (! ? *Rep.*) Notes of the cases are contained in the body of the paper.

Védié ('Gaz. des Hôp.,' 1871, 145) gives a case of rupture of the heart in a woman affected with dementia, whose age is not given, probably due to degeneration of the muscular fibres. Here there was a rent in the anterior wall of the right auricle. No murmur had been heard during life, though there were vegetations and insufficiency of the aortic valves. She died suddenly, after being in a prostrate condition for twenty-four hours.

Thompson ('Lancet,' 1871, ii, 635) records the following:—A gentleman, æt. 56, had been in good health and actively employed up to twenty-four hours before he complained of pain. He had retired to bed well, but towards morning he died. In this case there was a rupture an inch long in the anterior wall of the left ventricle, close to the apex. The muscle had undergone fatty change.*

Beck (ib., 803) gives a case of rupture of the left ventricle in a man, æt. 71, in whom the muscle was also fatty. He fell down speechless and apparently senseless, about twenty minutes before he died.

Matthews (ib., ib.) publishes the case of a man whose age is not given, who had suffered for some time with symptoms of valvular disease. He died suddenly, and at the post-mortem examination a hole was found at the base of the left ventricle, about the size and shape

* It would be well if others in the same position as this writer would place on record as he has done here "cases in general practice." In England, at least, the publication of cases, not always well and briefly reported, as these are, is too much confined to the consultants of large, especially metropolitan, hospitals.—A. B. S.

of a farthing, completely plugged with a black clot. "This hole was apparently the result of ulceration (! *Rep.*), and must have existed for some time, as the edges were completely rounded off, and the plug of clot adherent."

In the case recorded by Wiltshire (ib., 1872, i, 290), a woman, æt. 57, who had during life presented symptoms of ulcer of the stomach, suddenly died. In addition to the ulcers in the posterior wall of that organ, a rupture, three quarters of an inch long, was found in the right ventricle. The muscle was markedly fatty.

Hughes (ib., ii, 41) gives a case very like that of Thompson. The patient, a man of about 36, had been in his usual health, and had worked hard all day. At midnight after retiring to bed, he complained of nausea, and of pain "as if his liver was being torn to pieces." Soon after he died. The autopsy showed a rent, half an inch in length, in the wall of the right ventricle, about midway between the apex and base, close to and parallel with the longitudinal sulcus. The walls of the heart, though not examined microscopically, were soft and thin—probably fatty.

Lowe (ib., 524) also gives a similar case occurring in a woman, æt. 66, who after going to bed in her usual health, woke with sickness and vomiting, and died about seven hours later. Here the rupture was found in the left ventricular wall, immediately to the left of and parallel to the sulcus, and measured about three quarters of an inch in length. The substance of the heart was soft and flabby, and pale in colour.

Watson (ib., 659) publishes a case of rupture, to the extent of an inch, in the wall of the left ventricle, parallel with the sulcus. The patient was a woman, æt. 71, and the muscular tissue of the heart was pale and flabby.

Westcott ('Brit. Med. Journ.,' 1872, i, 554) records a case in which the symptoms of nausea and vomiting, though as in some other cases they might have been premonitory (?) of the mischief in the heart, are doubtful from the fact that the patient, a man, æt. 65, was more or less a drinker, and the rupture might have been the result of the vomiting (*Rep.*). In this case the heart showed the following appearances:—on the wall of the left ventricle were three longitudinal fissures, the lowest extending through the entire thickness of the wall, and measuring rather over a quarter of an inch in length: internally the rupture extended to three quarters of an inch. Some of the musculi papillares were ruptured, and the microscope proved the fatty degeneration of the muscle.

Sherman ('New York Med. Rec.,' vi, 345) publishes the case of a man in whom, after being crushed between two railway cars, the heart was found ruptured in three places.

Neurosis of the Heart.

Nunneley ('Lancet,' 1871, i, 228) groups cases of palpitation of the heart for convenience, and in the absence of any scientific classification,

as follows—(*a*) cases occurring in persons free from structural disease of the heart, or of any organ having a nervous connection with it; whether (1) in the young, in whom degenerative changes have not commenced, or (2) those in middle or advanced life in whom they made considerable progress; (*b*) cases of *distinctly* reflex origin; (*c*) palpitation associated with structural disease; (*d*) due to mechanical displacements of the heart; (*e*) palpitation as a prominent symptom in certain conditions of blood—anæmia, gout, exophthalmic goitre, excessive smoking or tea-drinking; (*f*) cases, of which he gives three examples, two with autopsies, characterised by the occurrence of palpitation in definite attacks of sudden access, and by the proportion which is observed between the perversion of the heart's action, and the patient's sensations, and by the evidence of disturbed innervation of organs connected with the heart. They form the transition, as it were, from palpitation to angina pectoris. He discusses (ib., 266) the treatment of palpitation, which consists in the removal of the immediate cause, regular hygiene and diet; tonics—iron, arsenic; diffusible stimulants and anodynes; local applications, such as belladonna. Althaus has advocated the application of the galvanic current to the pneumogastric and sympathetic nerves in their course, and Waller their compression in the neck by the thumbs; Nunneley thinks these two methods deserve study.

Moinet ('Edin. Med. Journ.,' xvi, 608) discusses the pathology of angina pectoris, and concludes that it is a paralysis occurring in and depending upon a weakened heart, as no other theory can account for the symptoms and history of the disease. As to treatment he recommends, during the paroxysm, diffusible stimulants and opium, hot brandy and water, sinapisms to the feet, and placing the hands and feet in hot water; and generally tonics, galvanism and bleeding.

Under the term of "irritable heart," Da Costa ('Amer. Journ. Med. Sci., lxi, 17) describes a form of functional disorder which he observed in upwards of three hundred soldiers during the American war. The men had been for a longer or shorter time in active service, and complained of inability to march, on account of dyspnœa, dizziness, palpitation, pain, and a feeling of oppression and tightness in the chest. In numerous cases there was a history of some disturbance of digestion. Though the men seemed to be in good condition, this derangement of the heart's action was very chronic, and the heart itself became in time hypertrophied. In addition to the palpitation, an almost constant symptom was the sharp paroxysmal pain at the heart; there was increased frequency of the pulse, much affected by position, &c., a hard and jerky pulse, disturbance of the nervous and digestive functions. Both sounds of the heart were equal and short, sharp and metallic, but generally unaccompanied by a murmur; when the latter was present it was usually systolic. The causes of the affection are analysed, the writer enumerates certain preceding conditions of ill health, such as malarial fevers, diarrhœa, hard field service, long marches. The predisposing causes may be misuse of tobacco and spirits, venereal excesses, syphilis, exposure to sun, &c. Da Costa looks upon the affection as the result of a disordered innervation on a heart rendered irritable by

over-action and excitement. As regards treatment, rest is the first requisite; digitalis, aconite, veratrum viride, gelsemium, belladonna, are all used with success, the latter especially in irregular action of the heart. Generally the course of treatment requires a long time.

Mazza ("Del Cardiopalmo Nervoso e del suo più congruo trattamento," 'Ann. Univ. di Med.,' ccxv, 3) writes on nervous palpitation. He describes it as preceded by various nervous disorders—hemicrania, singing in the ears, and such like. Its chief symptom is the altered action of the heart. The access of palpitation is accompanied by pulsation in the carotid, swelling of the jugulars, &c. The length of the paroxysm varies greatly, sometimes extending over several days, generally occurring in the night, The differential diagnosis is based on the absence of any signs of organic disease in the heart and large vessels, the simultaneous presence of other symptoms of nervine disturbance, and the alternation of normal action of the heart with palpitation. The cause is to be found in anything that produces abnormal irritation of the organ; the misuse of stimulants; cachectic diseases, especially those of the uterus, &c. The prognosis is more or less favourable. The treatment is mainly hygienic and dietetic. The writer prefers the sulphate or citrate of quinine in combination with carbonate of iron and bismuth.

Green ('Brit. Med. Journ.,' 1871, ii, 613) records a case of disturbed cardiac innervation in a man, æt. 47.

Congenital Malformation of the Heart, &c.

Hertel ('Berl. Klin. Woch.,' 1871, 337) publishes a case, occurring in Traube's clinique, of congenital stenosis of the aorta, complicated with aortic insufficiency, and adds some remarks by the latter on sclerosis of the aorta. The patient was a man, æt. 38, and the post-mortem examination gave the following results:—enormous enlargement of both sides of the heart; the valves, with the exception of the aortic, healthy. The latter were insufficient, two of them adherent, thickened on their free edge; the ascending aorta was dilated, but its walls were not thickened; the arch was of normal dimensions. At the point of entrance of the ductus Botalli, there was complete stricture of the aorta, with very great thickening and calcification of the walls, and an opening which admitted only a very fine probe. Above and below this narrowed portion there was well-marked sclerosis, especially at the points where the large vessels were given off. The corresponding collateral arteries (thoracic, mammary, epigastric, &c.) were enormously dilated; the thoracic aorta was about its normal size, the abdominal narrow in proportion. Traube offers a new theory as to the origin of arterial sclerosis; he thinks it is not to be referred, as most writers do refer it, to endarteritis, but to a slow movement of the blood stream. He illustrates his theory from the condition of the pulmonary vessels, in which sclerosis occurs only when there is great obstruction to the passage of the blood from them; and from the cases of drinkers, in whom the increased tension of the aortic system is due to the con-

traction of the smaller arteries. He sketches the *rôle* which the white blood corpuscles play in this retarded blood movement, and supports his theory by quoting Ranvier and Cornil ('Arch. de Physiol.,' 1868, t. i), according to whom the white blood corpuscles are found within the protrusions as well as on the free surface of the internal coat, in endarteritis.

Kelly ('Path. Soc. Trans.,' xxii, 93) records the case of a child, æt. three months, which had been cyanotic from birth. A loud systolic bruit could be heard all over the thorax, but most distinctly at the apex. The child generally had a convulsive attack every morning. At the autopsy the aorta was found arising from the right ventricle, and the pulmonary artery from the left. The right ventricle was hypertrophied, the ductus arteriosus closed, the foramen ovale open. The valves of the heart were healthy, the bronchial and coronary arteries given off normally.

Pye Smith (ib., xxiii, 80) gives a case somewhat similar. The patient was a male child, 14 weeks old when it died, in whom there had been persistent cyanosis since birth. The heart was large for the age. Externally it scarcely appeared ill-formed, the apex being formed by the left ventricle. The right ventricle was hypertrophied, and half as thick again as the left. The septum was perfect. Arising from a short conus venosus on the right side was the aorta, with three perfect semilunar valves, and two coronary branches; it next gave off an innominate, carotid, and subclavian branch, shewed an open ductus arteriosus at the usual point, and then turned down to the left side of the chest. The orifice and the whole of the aorta were small, but nowhere constricted. The pulmonary artery arose from the left ventricle, with valves larger than those of the aorta; it was enormously dilated, as was also the right auricle, which was hypertrophied as well. There was a cribriform opening in the foramen ovale. The writer makes some valuable remarks on the origin of this not very rare abnormality.

Dyce Brown ('Lancet,' 1871, i, 677) relates a case of stenosis of the pulmonary artery, followed by tubercular phthisis, occurring in a female, æt. 25. Both her parents had died of phthisis. From the age of two years it had been noticed that she was cyanotic. About the age of 23, she began to have a cough, and died at last of profuse hæmoptysis. There was a very loud systolic bruit during life. The autopsy showed slight enlargement of the heart, hypertrophy of the right ventricle, atrophy of the left; slight thickening of mitral and tricuspid valves; closed foramen ovale; stenosis of the right conus arteriosus, with a hard and distinctly cretified rim all round. The pulmonary valves were normal. About half an inch from this contracted orifice, to its right, was a triangular opening in the septum ventriculorum. Both lungs contained miliary tubercles and cavities. He refers to Lebert's remarks on stenosis of the pulmonary artery (see 'Med. Times and Gazette,' 1870, Jan. 1.).

Peacock, "Cases of Malformation of the Heart"—(1) entire obliteration or atresia of the orifice and trunk of the pulmonary artery; cyanosis; death from cancrum oris (boy, æt. 2½); (2) great contraction, or stenosis, of the pulmonary artery; defect in the septum of the ventricles and aorta, arising equally from the two cavities; no

ductus arteriosus, but that vessel replaced by two small branches connected with the aorta; cyanosis (boy, æt. 17, with plate), 'Trans. Path. Soc.,' xxii, 85. Kelly, 'Malformed Heart, defective Septum Ventriculorum" (girl, æt. 6), ib., 95. King, "Malformation of the Heart associated with Caries of the Right Mastoid Bone, and Abscess in the Right Cerebral Hemisphere" (boy, æt. 4, open septum, stenosis of aorta, dilatation of pulmonary artery, no ductus arteriosus), ib., xxiii, 83. Smart, "Stenosis of the Pulmonary Artery from Endocarditis in Fœtal Stage, increased by Endocarditis after Puberty, death by Phthisis" (boy, æt. 18, incomplete septum), 'Lancet,' 1871, ii, 288. Broadbent, "A Study of a Case of Heart Disease, probably Malformation" (woman, æt. 31), ib., 1872, ii, 850. Jullien, "Maladie Bleue,' 'Lyon Méd.,' viii, 391. Sutherland, "Case of Morbus Cæruleus" (girl, æt. 13), 'Med. Times and Gaz.,' 1871, ii, 526. Mackey, "Cyanosis, Murmur with the First Sound of the Heart, Patent Foramen Ovale" (female child, æt. 5 months), 'Brit. Med. Journ.,' 1871, ii, 666.

Aneurism, &c.

Balfour ('Edin. Journ.,' xvi, 704) records four cases in illustration of some difficulties in the diagnosis of aneurism close to the heart. In all the cases a pulsating tumour was present, with a systolic or double murmur at the base of the heart; but on post-mortem examination no aneurism was found, and only some slight valvular mischief in some cases, in others retraction of the lungs. He calls attention to the importance of these cases in relation to the diagnosis of aneurism in this situation, especially to the points in which they differed from aneurism, viz.:—(1) the entire absence of all the subsidiary phenomena dependent upon pressure on the neighbouring organs; and (2) the fact of the isochronous pulsations being less forcible than those of the heart.

G. Johnson records the case of a man, æt. 33, in whom aneurism of the aorta was diagnosed by the aid of the laryngoscope ('Brit. Med. Journ.,' 1871, ii, 720). The diagnosis was borne out by the appearances found post-mortem. At the back of the transverse aorta there was a shallow pouch an inch and a half in diameter, communicating with an aneurism about the size of a walnut, which pressed backwards on the trachea just above its bifurcation, and nearly filling its canal; the cartilages were eroded. The posterior wall of the aneurism was mainly composed of mucous membrane, in which was an ulcerated opening a quarter of an inch in diameter, and plugged only by a clot of fibrine. The symptoms during life were dyspnœa, dysphagia, and tracheal stridor; the latter was heard also over the upper dorsal spinous processes, when the voice had a loud bronchophonic character.

Crisp ('Path. Soc. Trans.,' xxii, 106) records a rare case of aneurism of the right coronary artery in a man, æt. 63. He had been formerly a great drinker; twenty years before his death he had fallen into the Thames, and was with difficulty resuscitated. Since then he had had palpitation of the heart. In December, 1870, he had hæmorrhage from the stomach; three months later he died suddenly. At the autopsy the pericardium was found distended with blood, which came from a small orifice opening into an aneurism on the commencement of the first branch of the right coronary artery. It was the size of a small walnut, and passed back between the root of the aorta and the auricular appendix; its walls were very thin. The coronary arteries

were atheromatous. The writer gives a table of 12 cases in which this description of aneurism was found; its most frequent termination is by rupture into the pericardium.

Barth ('Arch. d. Heilk.,' xii, 253) gives a case of dissecting aneurism in a man, æt. 57. After a motion of his bowels he was suddenly seized with paralysis and loss of sensation in the right leg, accompanied by severe pain in the chest. During the succeeding days the pains appeared in the right leg, and also in the left. The right leg was cold. Four days after another motion, death occurred somewhat suddenly. The autopsy showed about three pints of blood in the left pleura, into which projected a large tumour, the size of a child's head. The left ventricle was hypertrophied, but there was nothing else abnormal about the heart. The sheath of the aorta and pulmonary artery within the pericardium were infiltrated with blood. The commencement of the aorta was atheromatous. In the lower and middle part of the arch was a rent through the internal and muscular coats, about 4 cm. broad. Close by and for 10 cm. along the thoracic aorta, the sheath and muscular coats were hollowed out by a large effusion of blood. The latter communicated through a rent in the sheath in the highest part of the arch with a collection of coagulated blood under the pleura, bulging into the left pleural sac, and slightly into the posterior mediastinum. The writer explains the pain in the right leg by supposing that the dissected portion of the aortic wall was pressed against the opposite wall, somewhat in the fashion of an alternating valve, and so temporarily hindered the outflow of blood to the body.

Other papers on aneurism and disease of the aorta are:

Tirifahy, "Anévrysme de la Crosse de l'Aorta," 'Presse Méd. Belge,' 1871, 109. Vallin, "Observation d'Anévrysme de l'Aorta, ouvert dans la bronche gauche," 'Rec. de Mém. de Méd. milit.,' xxvii, 310. Duchamp, "Anévrysme de l'Aorta," 'Lyon Méd.,' viii, 326. Heath, "Sacculated Aneurism of the Arch of the Aorta simulating Aneurism of the Innominate Artery," 'Path. Soc. Trans.,' xxii, 95. Croft, "Aneurism of the Thoracic Aorta; cured Popliteal Aneurism," ib., 100. Williams, "Aneurism of the Arch of the Aorta bursting into the Œsophagus," ib., 102. Morris, 'Aneurism of Abdominal Aorta which had burst behind the peritoneum, and subsequently into the peritoneal cavity," ib., 104. Whipham, "Dissecting Aneurism of the first portion of the Arch of the Aorta," ib., 113. Hawkes, "Rupture of Aorta; Tumour of Brain," ib., 115. Bäumler, "Case of Aneurysm of the Innominate Artery, pressing on the right Pneumogastric and Recurrent Nerves," ib., xxiii, 66. King, "Aneurysm of the Aorta associated with Fracture of the first Rib, and Embolism of left middle Cerebral Artery," ib., 70. Ledliard, "Case of sudden death from an Aneurism of the Arch bursting into the Pericardium." 'Edin. Journ.,' xvii, 418. Chartres, "Case of Aneurism of the Thoracic Aorta; death from Rupture of the Sac" (in soldier with history of syphilis), 'Dublin Journ.,' lii, 36. Foot, "Case of Aneurism of the Abdominal Aorta in a Female," ib., li, 85. Russell, "Very large Intrathoracic false Aneurism closing the Superior Vena Cava by adhesion, and giving rise to a compensating Venous Anastomosis in the wall of the Chest and Abdomen," 'Med. Times and Gaz..' 1871, ii, 130. Moxon, "Sudden death from Subacute Inflammation of the Aorta," ib., 182. Bradbury, "Case of Aneurism of the Aorta; adhesions of the Heart and Pericardium; temporary improvement under the use of Iodide of Potassium" (man, æt. 58, death, autopsy), 'Brit. Med. Journ.,' 1871, i, 223. Stokes, "Case of Aneurism of the Aorta simulating permanent patency of the Aortic valves;" with autopsy (man, æt. 31), ib., 224. Neal, "True and False Aneurism of the Abdominal Aorta; rupture of the false aneurism and effusion into the subperitoneal space; death on the twelfth day" (man, æt. 36, autopsy), ib., 417.

Woodman, "Aneurism of the Abdominal Aorta presenting unusual Features (soldier, æt. 52, gangrene of right leg two years before), ib., ii, 380. Egan, "Aortic Aneurism," ib., 1872, i, 100. Browning, "Rupture of Aorta within the Pericardium" (man, æt. 34), ib., 661. Lincoln, "A case of Aneurism of the Arch of the Aorta treated by Electrolysis," 'New York Med. Rec.,' vi, 127. Moxon and Durham, "On a case of Abdominal Aneurism cured by Compression of the Aorta" (man, æt. 27), 'Med.-Chir. Trans.,' lv, 213. Bryant, "A case of Abdominal Aneurism treated by Distal Pressure" (man, æt. 30), ib., 225. Habershon, "On some Obscure Forms of Abdominal Disease. 1. Aneurism of the Abdominal Aorta simulating spinal disease. 2. Aneurism of the Aorta both in Chest and Abdomen; rupture; symptoms resembling those of renal calculus. 3. Aneurism of the Abdominal Aorta at the Cœliac Axis; gastric symptoms; pain in the testicle; rupture behind the peritoneum," 'Guy's Hosp. Reports,' xvi, 389. Domville "Case of Aortic Aneurism" (man, æt. 40), 'Lancet,' 1871, ii, 287. Sparks, "Intrapericardial Rupture of the Aorta in a Boy of 16," ib., 13. Schrotter, "Case of probable partial Obliteration of Aorta" (man, æt. 28, still alive), ib., ib. Waters, "Clinical Lecture on Thoracic Aneurism" (three cases, and another already published), ib., 1872, i, 247.

E. Diseases of the Organs of Digestion.

Affections of the Mouth, Pharynx, and Salivary Glands.

Isambert ('Gaz. Hebd.,' 1871, 757) gives a sketch of scrofulous (pharyngo-scrofulous) angina. It is, according to him, characterised by a slight degree of ulceration, or only erosion, of the follicles situated especially at the back of the pharynx; syphilitic ulcerations, on the contrary, commence on the velum, pillars and epiglottis before attacking the posterior wall of the pharynx. The scrofulous ulceration may, however, spread to these parts, and to the orifice of the Eustachian tube and the arytenoid cartilages. They are indolent and unaccompanied by any swelling of the cervical glands. They are yellow, rough, and covered with muco-purulent matter. In the worst cases the whole mucous surface is obscured by a greyish deposit, the breath is fœtid, and yellow pointed pustules like small boils are visible. It is not always easy to distinguish the scrofulous and syphilitic lesions of the pharynx, though the diagnosis is generally easy in extreme cases; but the treatment which cures those due to the syphilitic poison only aggravates the scrofulous ulcers, which are healed by tonic and anti-scrofulous remedies. Adhesions of the velum may follow their cicatrisation, and must be remedied by surgical means; the deafness which often succeeds, and is due to obliteration of the Eustachian tube cannot apparently be cured. He recommends iodide of iron, general tonics, cod-liver oil, and local applications of tincture of iodine, either alone or with opium; æthereal tincture of iodoform; solutions of chloride of zinc, or concentrated chromic acid; inhalations of a powder composed of iodoform and lycopodium; and in cases in which the ulceration is accompanied with hæmorrhage, the local use of perchloride of iron. In the discussion which followed the reading of this paper in the Société Médicale des Hôpitaux, Labbé strongly opposed the term "scrofulous" as applied to the affection, on the ground that scrofula is not a disease, but a diathesis.

Lubanski ('Lyon Méd.,' viii, 426) writes upon "Ulcerative angina," which complicates ulcerative stomatitis in soldiers, and is more pro-

perly called "pseudo-membranous stomatitis." He had occasion to observe the affection as it occurred in an epidemic of "ulcerative stomatitis" in a portion of the garrison at Lyon during the late war. Of twenty cases five presented well-marked ulcerative angina, in two of which the stomatitis was absent. The patients' condition was generally good, but they complained of pain in swallowing; examination of the throat showed one or two more or less extensive yellowish patches on the pillars of the fauces and the tonsils. He lays great stress upon their yellow colour; they were seldom grey or blackish like the deposit in diphtheria. The underlying ulcerations were only slight, not surrounded by any swelling or induration of the mucous membrane, and with no tendency to spread. The affection never extended beyond the isthmus of the fauces; generally it was unilateral. The pain was only slight. The submaxillary glands generally took no part in the disturbance, though sometimes they were only slightly swollen. The breath was always fœtid. The patients continued their occupations throughout the affection; there was no pyrexia; in one case only were there slight febrile symptoms at the commencement. The length of the angina depended on the treatment; generally all symptoms disappeared at the end of a fortnight. Change of air and diet, gargles, and the application of nitrate of silver, were the means employed.

Crisp, "Cancer of the Tongue and Simple Stricture of the Œsophagus" (female, æt. 64), 'Path. Soc. Trans.,' xxii, 128. Bristowe, "Cancer including Pharynx, Larynx, neighbouring Lymphatic Glands and Lungs" (woman, æt. 48), ib., 132. Bradley, "Adhesion of the Velum Pendulum Palati to the Posterior Wall of the Pharynx; loss of the epiglottis, syphilis," ib., xxiii, 101. Thorowgood, "Salivary Calculus removed from the Orifice of the Parotid Duct," ib., 103. Arnott, "Macro-glossia or Congenital Enlargement of the Tongue," ib. 109. Fairlie Clarke, "Hypertrophy of the Tongue," ib., 111. Id., "On a Case of Unilateral Atrophy of the Tongue," 'Med.-Chir. Trans.,' lv, 91. Stroppa, "Faringite ed esofagite flemmonose con suppurazione delle tonsille ed edema acuto della glottide" (the last the cause of death, man, æt. 47), 'Gaz. Med. Lomb.,' 1871, 277. Decaisne, "Paralysie du voile du palais, application de sangues, guérison" (woman, æt. 98, with simple angina), 'Gaz. des Hôp.,' 1871, 278. Heidenhain, "Ueber die Wirkung einiger Gifte auf die Nerven der Glandula Submaxillaris," 'Pflüger's Arch.,' v, 40. Handfield Jones, "Treatment of Acute Tonsillitis with Belladonna," 'Lancet,' 1871, i, 12. Id., "Case of Pseudo-tonsillitis," ib., 504. Lasèque, "Stomatite érythémateuse," 'Gaz. des Hôp.,' 1872, 81. Packard, "Report of a Case of Tonsillitis associated with Parotitis; Laryngo-Tracheotomy, death" (boy, æt. 4¾ years), 'Amer. Journ. Med. Sci.,' lxiii, 404. Priestley, "On Cancrum Oris," 'Brit. Med. Journ.,' ii, 577. Dujardin-Beaumetz, "Des Troubles de la Sécrétion Salivaire," 'Gaz. des Hôp.,' 1872, 211.

Affections of the Œsophagus.

Porro ('Annal. Univ. di Med.,' ccxvii. 421) records a case, with plates, of congenital atresia of the œsophagus, the lower part of which communicated with the trachea. A newborn female child, after beginning eagerly to suck, was suddenly seized with cough, choking, and regurgitation of the milk. The introduction of a sound proved the condition of the tube. The child lived two days. The upper portion of the œsophagus was found to terminate in a blind end 2½ cm. below the glottis: from the blind end a bundle of muscular fibres was

continued along the posterior wall of the trachea to the bifurcation: here there was an opening between the lower portion of the œsophagus and the trachea. Some traces of milk were in the stomach, which must have found their way thither through the trachea and the opening. There was but slight expansion of the right lung.

Fagge, "A Case of Simple Stenosis of the Œsophagus followed by Epithelioma" (male, æt. 84, œsophagus in upper part rather less than an inch in diameter, dilated to 1¼ inch at a point 4½ inches from cardia, thence gradually narrowed till it admitted only an ordinary lead pencil, epithelioma of dilated portion), 'Guy's Hosp. Rep.,' xvii, 413. Clapton, "Cases of Stricture of the Æsophagus" (two, one autopsy, both males, æt. 51 and 55), 'St. Thomas's Hosp. Rep.,' ii, 177, and see Bristowe's report of the first case, 'Trans. Path. Soc.,' xxii, 134. Demarquay, "Rétrécissement de l'œsophage' (in a boy æt. 15, who had drank a glass of potash-solution; the catheter by which he was fed seems to have passed through the softened œsophagus, a communication being found post-mortem between the latter and a large empyema), 'Gaz. des Hôp.,' 1872, 36. Greenhow, "Cancer of the Œsophagus, with a Fistulous Opening into the Trachea" (man, æt. 59, epithelioma), 'Path. Soc. Trans.,' xxii, 129. Thorowgood, "Cancerous Stricture of the Œsophagus" (man, æt. 64, epithelioma), ib., xxiii, 115. West, "On Syphilitic Constriction of the Œsophagus and Pharynx," 'Lancet,' 1872, ii, 291. Lowe, "On Gastrotomy," with case (of a woman, æt. 51, in whom the autopsy showed schirrhus of the œsophagus), ib., 1871, ii, 121.

Affections of the Stomach.

Flint ('New York Med. Rec.,' vi, 40) publishes a paper on the pathological relations of the gastric and intestinal tubules, based mainly on the researches of Handfield Jones, Wilson Fox and Fenwick.

Hilgendorf and Paulicki ('Virch. Arch.' lii. 153) found extensive ulceration of the mucous membrane of the stomach, with purulent embolic deposits in the liver, in an ape ('Cebus Apella ?'). The animal had had diarrhœa for some time.

Ward ('Brit. Med. Journ.' 1872. i. 185) records the occurrence of medullary sarcoma of the stomach in a man, aged 53. He had no actual pain, but a little uneasiness after taking food, and vomited at intervals a small quantity of dark fœtid, not fœcal, fluid. There was no pain anywhere on pressure, nor was any tumour perceptible. A large fungated growth was found in the interior and posterior wall, occupying part of the lesser curve of the stomach, as well as the pyloric half. The pyloric orifice and greater curve were free, so that food could readily pass. The cardiac section of the stomach was not dilated, and its walls were not perceptibly thickened. Microscopic examinations of the growth showed small round nucleated and granular cells imbedded in connective tissue.

Affleck ('Edin. Journ.' xvii, 1104) gives two cases of dilatation of the stomach, in which the method of Kussmaul (see last Report, p. 168) was employed. In both cases there was evidence of stricture of the pylorus. Both patients were men, aged 36 and 42. The second case was less promising than the first, in that the disease had existed longer, the dilatation of the stomach was greater, and there was (doubtful?) evidence of ulceration. Both cases, however, obtained great relief from the use of the stomach-pump. The author attaches great importance to the restoration of the urine to its normal quantity and character, as

indicating that the mucous membrane of the stomach is in a healthier condition. In these cases (ib. xviii. 378) the stomach was emptied between breakfast and dinner, at first once a day, then after the lapse of two or three days, and at last dispensed with altogether.

Schliep ('Lancet,' 1872, ii, 851) communicated a paper on the same subject to the Clinical Society. The results of the application of the stomach pump had been eminently satisfactory, and appeared in general in the following order:—Vomiting ceased, the pains disappeared, the appetite and action of the bowels soon became better, the general health was improved, and the patient's weight was increased. He had tried soda, creasote, bromic acid, and permanganate of potash for washing out the stomach with good effect. The patients soon became accustomed to the tube, and there was but little fear of sucking some mucous membrane into its opening. This had occurred only once in about six hundred applications of the pump by the writer, and was followed by no bad consequences.

Crisp showed to the Pathological Society ('Trans.,' xxiii, 137) a dilated stomach from a woman aged 60, who had suffered for some years from indigestion, flatulence, acidity and pyrosis. Her skin was of a yellowish, coppery tint. She had also commencing cirrhosis of the liver.

Habershon ('Guy's Hosp. Rep.,' xvi, 399) records the three following cases:—The first was that of a woman, æt. 47, who had had pain and vomiting after food for a year, and had become gradually weaker. Her feet and ankles swelled, and soon after her abdomen became enlarged. On admission, there was anasarca of the whole of the lower extremities, œdema of the abdominal walls, and ascites. The heart sounds were very feeble; the urine free from albumen. About a month later she was seized with violent pain in the epigastrium, soon became collapsed, and died. At the autopsy the abdomen was greatly distended, and contained a considerable quantity of fluid, of a milky appearance, in the peritoneum. The stomach also was greatly distended with dark-coloured fluid, consisting of semi-digested food and blood. The pylorus was very much thickened; the submucous cellular tissue was an inch in thickness, white, fleshy, and œdematous, without cancerous juice, the thickening becoming gradually less, but reaching nearly five inches from the pylorus. The muscular coat was very much hypertrophied, a quarter of an inch in thickness at the pylorus. There was slight ulceration at one point as large as a threepenny-piece. The microscope showed that "the greater part of the white tough substance was composed of organised fibrous tissue, but in parts the substance was a more delicate tissue, with numerous small, spindle-shaped cells, with very long tails blending in the intercellular fibroid or fibrillated texture." The mucous membrane itself was not affected. The other organs, excepting the heart, which was small and atrophied, were normal. The case is considered to be one of sarcomatous disease of the pylorus. In the second case, a man, æt. 45, in whom there had been scarcely any vomiting, a large cancerous ulcer existed in the stomach; it reached the pylorus, but the ulceration had removed the obstruction. The growth and ulceration extended for three inches at least into the

stomach, and occupied both the anterior and posterior aspect. There were no nodules in the liver itself, but some enlarged glands had exerted pressure upon the bile-ducts, and had caused the jaundice noticed during life. In the third case, a man, æt. 44, there was the most extensive ulceration of the stomach, by which the pyloric valve was destroyed. For some weeks before death the vomiting, which had existed at first, ceased almost altogether.

Mayer ('Deut. Arch.,' ix, 105) gives a case in which softening of the stomach occurred during life. The patient was a man, æt. 37, who had been at a former period under treatment for stricture of the cardia. He was suddenly seized with symptoms of perforation after having taken a large quantity of new beer in a state of fermentation, and black bread. A few hours after the symptoms first set in, the liver dulness had disappeared, and in six hours and a half the patient was dead. The post-mortem examination showed a rent, 9 centimètres long, in the fundus of the stomach, with extensive brown softening, the cavity of the peritoneum distended with gas, and the contents of the stomach; the latter covered the coils of intestine in more or less thick layers. Mayer agrees with Hoffmann as to the pathological process which takes place, and which the latter writer believes to consist in hæmorrhagic infiltration of the walls of the stomach, and their solution from the effect of the acid contents of the organ.

Moxon, "Case of Gout in the Stomach (?) and Phlegmonous Colitis" (man, æt. 39, albuminuria, diarrhœa, contracted kidneys, gouty deposit in joints), 'Trans. Path. Soc.,' xxii, 139. Skoda, "Ueber das perforirende Magengeschwür. Klinischer Vortrag," 'Wien. Med. Zeitung,' 1871, 97. Heubner, "Ueber einen seltenen Fall von indirecter Magenlungenfistel, in Folge eines Perforirenden Magengeschwürs" (woman, æt. 27, autopsy, with engraving), 'Arch. d. Heilk.,' xii, 193. Janeway, "The Cause of Perforating Ulcer of the Stomach" (woman, æt. 34, large old ulcer, with perforation, and hæmorrhagic infiltrations in its neighbourhood, embolism of gastro-epiploic artery), 'New York Med. Rec.,' vi, 427. Crisp, "Fatal Hæmorrhage from simple Ulcer of the Stomach" (woman, æt. 62), 'Path. Soc. Trans.,' xxii, 141. Ross, "A Case of Perforating Ulcer of the Stomach, Recovery," 'Lancet,' 1871, i, 81. Tinley, "Case of Peforating Ulcer of the Stomach, Recovery," ib., 503. Farrar, "Case of Ulcer of the Stomach" (?!), ib., ii, 574. Wiltshire, "Ulcer of the Stomach, Rupture of the Heart" (see under latter), ib., 1872, i, 290. Heslop, "Ulcer of the Stomach" (woman, æt. 36, autopsy), 'Brit. Med. Journ.,' 1872, i, 223. Stewart, "Case of Hæmatemesis Treated by the Hypodermic Injection of Ergotine," 'Edin. Journ.,' xvii, 511. Johnson, "Cancer of the Stomach" (woman, æt. 52), 'Brit. Med. Journ.,' 1871, ii, 527. Bristowe, "Cancer of Stomach, Liver, Lungs, Lymphatics of the Thorax, with involvment of Left Recurrent Laryngeal, and Paralysis of the Left Side of the Larynx" (man, æt. 49), 'Path. Soc. Trans.,' xxii, 137. Wilson, "Cancer of Stomach, with Cheesy Deposits in Lungs of later Formation" (female, æt. 46), 'Amer. Journ. Med. Sci.,' lxi, 425. Ziemssen, "Zur Technik der Localbehandlung des Magens, zugleich eine Mahnung zur Vorsicht bei der Anwendung der Magenpumpe," 'Deut. Arch.,' x, 65. Gee, "Thrombosis of Varicose Veins of Stomach" (man, æt. 63), 'St. Barth. Hosp. Rep.,' vii, 148.

Affections of the Intestines.

Under the term "membranous enteritis," Da Costa ('Amer. Journ. Med. Sci.,' lxii, 321) describes the affection of the intestines "in which membranes or skins are voided." He thinks it is the discharge of the inner coat of the bowel spoken of by Paulus Egineta; one of the in-

farctus of Kaempf; the diarrhœa tubularis, pellicular enteritis, pseudo-membranous enteritis of later writers. The disease is characterised by attacks of abdominal pain, followed by the discharge of moulds or long tubes. There may be but one attack; more generally the paroxysm is followed by others at varying intervals. The shortest time for an attack to last is, according to his experience, a week. The discharge is preceded by distension, sense of burning, colicky pains, and, at times, a sluggish state of the bowels, and succeeded by a condition of comparative health. Palpitation of the abdominal aorta is common; between the attacks the bowels are irregular, the patient suffers from disturbance of his general health and nervous system, and irritable bladder, with discharge of large quantities of mucus. He gives the notes of seven cases. The membranous discharge may come away with every movement of the bowels, almost continuously for months, perhaps years. The microscopic examination of the tubes passed shows a transparent, amorphous, basement-substance, here and there indistinctly fibrillated, and having imbedded in it granules, free nuclei, and small, shrivelled, irregular, and rather granular cells. There are not many well-marked epithelial cells, nor white or elastic fibrous tissue cells. The chemical reactions of the membranes do not throw much more light upon them. He discusses the differential diagnosis of the affection, looks upon the prognosis as unfavourable, and suggests rest in bed, application of hot water to the abdomen, slight purgatives, and an easily digested diet, as most suitable during the attack. The treatment in protracted cases consists in a strict régime, the disuse of purgatives, the steady use of iron, acids, bismuth, injection of nitrate of silver, and the application of the continuous current.

Whitehead ("Mucous Disease," 'Brit. Med. Journ.,' 1871, i, 143) gives an historical account of the same affection. Out of 120 writers on the disease, he cannot refer to any half dozen who have described it by the same name. He considers himself justified in stating that the characteristic discharge from the bowel may be divided into three stages: —(1) Masses of more or less inspissated mucus, having the appearance of jelly. They are perfectly membranous, and contain only the merest trace of albumen. (2) Tubular casts of the gut, which occur as cylindrical sheaths, and also membranous shreds or flakes of various forms, which can be shown to be nothing more than fragments of the tubes in various stages of development. These contain an abundance of albumen, but no fibrin. (3) Membranous shreds of lymph, mixed with blood and pus. This form contains both albumen and fibrin in abundance, the latter in a fibrillated form. Middle-aged persons, children, and old people, may be held as liable to the disease in the order in which they are enumerated. It occurs far more frequently in females than in men. Constipation, and the retention of excreta within the system, while it is a consequence, is also an exciting cause of the disease. It is generally observed in persons of a cold temperament and relaxed habit of body, with feeble circulation, cold extremities, and a peculiar whitish-yellow paleness of skin; in those who are apathetic, and wanting in decision and energy in their moral and intellectual character, though at the same time they possess a highly excitable condi-

tion of the nervous centres. Women who suffer during menstrual periods, and those who are victims to membranous dysmenorrhœa, are peculiarly prone to it. It is often met with in women who are either childless, or have ceased early in their married life to bear children. The most common existing cause of the malady is the irritation of the intestinal canal, produced by crude and indigestible articles of diet. The writer discusses at further length the symptoms and the treatment of "mucous disease."

McSwiney ('Dub. Journ.,' li, 396) writes on diarrhœa, with green stools, in infants. As to their nature and constitution he leaves them still unexplained. He thinks there may be a "congenital functional digestive weakness," by which a true gastro-intestinal catarrh would be caused, followed by acid fermentation, and the action of the acids so produced perhaps on the bili-verdin.

Rosse ('New York Med. Rec.,' vi, 332) has found the best results from the treatment of cholera infantum with bromide of potassium. The medicine was usually prepared by mixing from twenty to forty grains of the bromide with two ounces of mucilage of acacia; the dose was from ten drops to a teaspoonful according to circumstances. Occasionally a drachm of krameria was added to the mixture. The food given was the expressed juice of fresh beef, seasoned with cayenne pepper.

The 'Bulletin de l'Acad. de Méd.' (xxxvi, 522), contains a discussion on gastro-intestinal puncture in tympanites, opened by Bouley who affirmed the harmlessness of the operation as practised by veterinary surgeons on animals. Depaul, Piorry, Barth, and others, give their experience of the operation as performed on the human subject, and generally speak well of its results.

Beach ('New York Med. Journ.,' xiv, 397) records a case of fatal peritonitis in a woman, æt. 32. The autopsy showed general peritonitis, the appendix vermiformis was greenish-black, and contained a hard ovoid mass made up of oat-hulks; between the external surfaces of the head of the ascending colon, the ileum and the appendix was an abcess tying together these parts of the intestine.

Murchison ('Path. Soc. Trans.,' xxii, 146) gives a case of the same kind in a girl, æt. 18, in whose appendix vermiformis were found three small concretions, the largest about the size of a pea. She died of acute peritonitis due to ulceration and perforation of the appendix.

Fonssagrives, "De la Ponction dans la Pneumatose Gastro-intestinale et Péritonéale," 'Lyon Méd.,' viii, 155. Piorry, "Memoire rélatif; soit aux Collections de Gaz contenus dans les Cavités Abdominales; *Gazo-gastrasie, Gazo-entérasie, Gazo-péritonasie* (*asie*, abréviation d'*ectasie*), varietés de la *Tympanite* des auteurs, soit à la Ponction de ventre, pratiqueé dans l'intention d'évacuer des Fluids Élastiques," 'Bull. de l'Acad. de Méd.,' xxvi, 943. Wathen, "On Punctures of the Colon for the relief of Tympanites," 'Brit. Med. Journ.,' 1871, ii, 464. Braxton Hicks, "Abdominal Puncture in Tympanites," ib., 526. Brown, on same, ib., ib. Saunders, "Puncture of the Intestine for the relief of Tympanites," ib., 583 (and see Rooke and Wilks on the same subject, ib., 584). Chauffard, "Ulcère simple du Duodenum; perforation; péritonite généraliseé; mort," 'Gaz. des Hôp.,' 1871, 373. Barclay, "A Case of Perforating Ulcer of the Duodenum" (man, æt. 56), 'Lancet,' 1871, i, 377. Wadham, "A Case of Perforating Ulcer of the Duodenum" (man, æt. 51), ib., 230. Rogers, "Perforating Ulcer of the Duodenum" (man, æt. 56), ib., ii, 159. Tyson, "Ulcerative Disease of

he Large Intestine" (man, æt. 28), 'Amer. Journ. Med. Sci.,' lxi, 154. Weber, "Abscess of the Appendix Vermiformis," 'New York Med. Journ.,' xiv, 142. Chambers, "On Obscure Disease of the Cæcum," 'Brit. Med. Journ.,' 1871, i, 7. Elliott, "Obscure Disease of Cæcum," ib., 35. Jackson, "Case of Perityphilitis," ib., ii, 63. Waldeyer, "Mycosis Intestinalis," 'Virch. Archiv,' lii, 541. Münch, "Mycosis Intestinalis und Milzbrand," 'Centralbl.,' 1871, 802. Weiser, "Ueber die Behandlung des Durchfalls bei Säuglingen," 'Wien. Med. Woch.,' 1871, No. 35. "Diarrea nei Bambini," 'Méd. Gaz. Lomb.,' 1872, 30. Gueneau de Mussy, "Leçons Cliniques sur la Diarrhée Chronique," 'Gaz. des Hôp.,' 1872, 27. Simon, "Diarrhée palustre; sulfate de quinine," 'Arch. Gén.,' xix, 108. Heslop, "Case of Abdominal Intumescence, with Displacement of the Heart, from Fæcal Accumulation" (girl, æt. 14), 'Lancet,' 1871, i, 647.

Intestinal Obstruction.

Küttner ('Virch. Arch.,' liii, 274) discusses the pathological processes which a portion of invaginated intestine undergoes, before the intussuscepted part dies and separates, and before recovery is complete. He gives three cases with autopsies, two in boys of 18, and one in a man 34 years old. In all the cases the first symptoms of obstruction were succeeded by diarrhœa: and the post-mortem appearances in all three showed that after inflammation and necrosis the intestine became again permeable, but death occurred, as it frequently does, from perforation of the intestinal walls and general peritonitis.

The following cases must speak for themselves; they have been arranged according to the classification given by Fagge ('Guy's Hosp. Rep.,' xiv, 272; and see last 'Bienn. Rep.,' p. 172.—*Rep*).

1. Cases in which the gut is plugged by its contents:

Simon, "Histoire d'une Occlusion Intestinale complête par un Calcul Biliaire, quelques rémarques sur le Traitement de ce grave accident," 'Bull. Gén. de Thérap.,' lxxxi, 178. Meynott, "Impaction of a large Gallstone in the Ileum," 'Lancet,' 1872, i, 576. Clarke, "Large Biliary Concretion in the Ileum," 'Med.-Chir. Rev., lv, 1. Prunac, "Occlusion Intestinale Produite par l'Accumulation de Matières Stercorales. Emploi de la glace intus et extra," 'Gaz. des Hôp.,' 1871, 486. Black, "Clinical Lecture on Obstinate Constipation and Obstruction of the Bowels," 'Brit. Med. Journ.,' 1871, i, 83.

2. Intussusceptions or invaginations:

Greene, "Invagination of the Large Intestine" (child, æt. 4½ months, autopsy), 'Brit. Med. Journ.,' 1871, ii, 279. Gray, "Report of a case of Intussusception" (child, æt. 5 years, autopsy), 'Lancet,' 1871, i, 338. Hunter, "Interesting case of Intussusception" (child, æt. 9 months), 'Lancet,' 1872, i, 349. Crisp, "Intussusception in an Infant" (girl, æt. 8 weeks, autopsy), 'Path. Soc. Trans.,' xxiii, 125. Durham, "Intussusception of the Rectum, with Adenomatous Growth" (man, æt. 44, colotomy, death four days later, autopsy), ib., 116. Kjelberg and Blix, "Fall af tarminvagination hos et spädt barn" (female child, æt. 11 months, invagination of upper part of large intestine and portion of the small intestine in descending colon, and sigmoid flexure), 'Hygiea,' 1871, 97. Moretti, "Invaginento intestinale, Nota ed osservazione," 'Annal. Univ. di Med.,' ccxvi, 542. Herz, "Zwei Fälle von Darminvagination bei Kindern" (1, female, æt. 6 months, intussusception of transverse and ascending colon, cæcum, and end of ileum, operation, death six hours afterwards; 2, female, æt. 7 months, death), 'Oesterr. Jahrb. f. Paediat.,' 1872, i, 1. Dubois, "Occlusion intestinale, élimination d'une portion d'intestin grêle longue de 40 centimètres." Guérison, (boy, æt. 15), "Bull. de l'Acad. de Méd.,' xxxv, 849. Halleguen, "Guérison depuis dix ans d'une invagination intestinale avec expulsion de 75 centimètres d'intestin

grêle" (woman, æt. 50), ib., 851. Rogers, "Intussusception" (boy, æt. 7, recovery), 'New York Med. Rec.,' vi, 115.

3 and 4. Strictures and contractions:

Thompson, "Congenital Narrowing of the Canal of the Rectum" (male, æt. 46, autopsy), 'Lancet,' 1871, ii, 635. Bristowe, "Complete Stricture of the Upper Part of the Descending Colon caused by a growth of Colloid Cancer. Ulceration of the Colon and Ileum, and Perforation of the latter," 'Path. Soc. Trans.,' xxiii, 119.

5. Volvuli:

Crisp, "Fatal Strangulation from the Twisting of a portion of the Colon" (male æt. 62, autopsy), 'Path. Soc. Trans.,' xxiii, 112. Bell and Croom, "A case of Obstruction of the Bowels, attended by Unusual Symptoms, with Remarks" (man, æt. 50, twist of intestine above colon, rupture of intestine, general peritonitis), 'Edin. Journ.,' xvii, 971. Panas, "Cas d'Occlusion Intestinale produite par le Renversement d'une Anse de l'Iléon sur ellemème. Établissement d'un Anus Artificiel, Mort, Autopsie" (male, æt. 75), 'Gaz. des Hôp.,' 1871, 359. Meade, "Case of Chronic Ileus" (woman, æt. 40), 'Brit. Med. Journ.,' 1871, ii, 261. Thompson, "Clinical Lecture on a Case of Intestinal Obstruction" (woman, æt. 51, omental), 'Med. Times and Gaz.,' 1871, ii, 97. Handfield Jones gives the following cases:—Volvulus in man, æt. 55, Twisting of Mesentery in girl, æt 10; ib., 1872, i, 3.

6. Strangulation:

Habershon, "Adhesion and Contraction of the Omentum, the cause of fixed Abdominal Pain, afterwards of Colic and of Obstruction," 'Guy's Hosp. Rep.,' xvi, 415. Heiberg, "Ueber innere Incarcerationen," 'Virch. Arch.,' liv, 30. Id., "Nachtrag zu dem Aufsatz über innere Incarcerationen," ib., 282. Taylor, "Intestinal Obstruction from a Knot on the lower part of the Ileum" (woman, æt. 40; with autopsy and drawing), 'Brit. Med. Journ.,' 1871, ii, 119. Salter, "Strangulation of a Loop of Intestine by Fibrous Bands, Death" (man, æt. 69, with autopsy), 'Lancet,' 1871, i, 153. Gay, "Strangulation of Intestine by a Solitary Band" (! no autopsy), ib., 233. Southey, "On Two Cases of Persistent Omphalomesenteric Duct, leading to Fatal Intestinal Obstruction" (boy, æt. 16, girl, æt. 13½), 'Med. Times and Gaz.,' 1872, i, 412. Handfield Jones, "Cancerous Stricture of Intestine" (woman, æt. 64), ib., 64. Dubay, "Incarceratio Herniæ Mesogastricæ dextr. in Folge der abnormen Bildung des Mesenteriums" (man, æt. 35), 'Virch. Arch.,' lvi, 271.

Dysentery.

Bierbaum, "Dysenteria. Erlebnisse aus der Kinderpraxis," 'Deut. Klin.,' 1871, 29. Valentiner, "Störungen der Hautcirculation und Hauternährung in einem Falle von Dysenterie," 'Berl. Klin. Woch.,' 1871, 9. Luton, "Note sur l'emploi de l'ergot de seigle contre la Dysenterie," 'Gaz. Hebd.,' viii, 610. Témoin, "Considérations Générales sur le Traitement de la Dysenterie," 'Bull. Gén. de Thérap.,' lxxxi, 412. Habershon, "Dysentery in China, Chronic Irritation of the Colon, deep-seated pain behind the Spleen, Abscess, Effusion into the Chest, and Death" (man, æt. 50), 'Guy's Hosp. Rep.,' xvi, 422. Ward, "Notes on Fifteen Cases of Chronic Dysentery," 'Lancet,' 1871, ii, 160. Murray, "Recent Specimens of Acute Dysentery from Sedan," 'Path. Soc. Trans.,' xxii, 142.

Affections of the Liver.

(*a*) *Suppurative Hepatitis—Abscess.*

Jameson ('Lancet,' 1871, i, 569) tapped an abscess in the liver of a Mahommedan, æt. 40, at Hurdui, Oudh, and removed seventy-two ounces of purulent fluid. Four days later the patient died. The autopsy showed that a single abscess occupied the whole substance of the liver except a small portion of the posterior part of the right lobe.

Its cavity was found capable of containing only eighteen ounces of water, so rapidly had it contracted.

Chunder Roy (ib., 10) records a case in a Mahommedan, æt. 30, in whom the introduction of a canula was followed by an even stream of dark venous blood; the orifice of the canula, which was left *in sitû*, was plugged, but the patient died three days later of exhaustion. The post-mortem examination revealed a large abscess occupying the right lobe of the liver, which was transformed into a uniform cyst, bounded by a wall of hepatic substance not thicker than half an inch. A few lines of hepatic tissue intervened between the point of the canula and the cavity of the abscess.

Black, "Abscess of the Liver, Operation, Recovery" (man, æt. 31), 'Lancet,' 1872, i, 647. Ward, "Supposed Hepatic Abcess discharging through the Lung" (man, æt. 56), ib., 681. Moxon, "Abscess of the Liver," ib., ii, 778. Bennett, "Hepatic Abscess," 'Brit. Med. Journ.,' 1872, i, 625. Arnould, "Abcés et infarctus du Foie et de la rate," 'Gaz. Méd.,' 1872, 4. Gallard, "Lécons sur l'Hépatite et sur les Abcés du Foie," 'Union Méd.,' xii, 680.

(*b*) *Parenchymatous Hepatitis—Acute Atrophy.*

Duckworth and Legg ('St. Barth. Hosp. Rep.,' vii, 208) give notes of three cases of acute yellow atrophy of the liver. A girl, æt. 10, had been jaundiced for some days before admission, and after attacks of the most furious delirium, and almost incessant vomiting, died eighteen days later. The hepatic dulness was somewhat diminished. On opening the abdominal cavity, numerous ecchymoses were seen studding the omentum and colon. The liver was adherent by a few old adhesions to the diaphragm; it did not seem to be shrunken in size. The cœcum and colon were filled with scybalous masses of a pale clay-colour; about an inch below the pylorus there was a small ulcer about the size of a three-penny piece covered by a coagulum of blood. The stomach contained about four ounces of chocolate-like fluid. The bile-ducts contained a few drops of a viscid greenish fluid. The liver was flaccid, and felt doughy; it was considerably mottled and presented islets of a bright yellow colour, which were continued into the substance of the organ; the acini were quite distinct. The knife was rendered distinctly greasy. In the left lobe there was a light yellow staining of the whole liver substance, and no acini could be made out. Sections of the left lobe showed under the microscope no trace of liver-cells, only an extremely dark and granular appearance, with large and small globules of fat and balls of pigment about the size of a granulation-corpuscle. In the sections from the right lobe a few hepatic cells remained undissolved, but in other respects their appearance was the same. The spleen was soft, the kidneys somewhat degenerated. The other organs were natural. In the other two cases occurring in men, aged 23 and 19, no post-mortem examination could be made. The second of these two was a brother of the girl first mentioned. A noteworthy point in connection with other symptoms in the diagnosis of the disease would seem to be the occurrence of severe hepatic pains associated with a temperature either natural or even below the normal.

Chamberlain ('New York Med. Rec.,' vi, 265) gives a case of atrophy

of the liver in a woman aged 22. The symptoms were icterus, black vomit, coma, suppression of urine; death occurred after six days. The liver weighed 2 lbs. 8 ounces.

Porter ('Amer. Journ. Med. Sci.,' lxi, 409) gives notes of a case of the same kind in a merchant aged 23, with an account of the post-mortem appearances found.

Clements ('Brit. Med. Journ.,' 1871, i, 367) records the following:—A girl, aged 17, previously in good health, became jaundiced, and complained of drowsiness. She then had persistent vomiting and became delirious, and died comatose. The autopsy showed all the organs healthy except the liver, which weighed only 13 ounces. Not a trace of hepatic cells could be found under the microscope.

Goodridge (ib., 609) gives the case of a man, aged 20, in whom acute atrophy of the liver complicated early secondary syphilis. Here the liver weighed only 30¼ ounces, and hardly a trace of hepatic cells could be found.

Murchison, "Jaundice from Gall-stones, followed by Acute Atrophy of the Liver, with Puriform Deposits" (man, æt. 66), 'Path. Soc. Trans.,' xxii, 159. Moxon, "Sub-acute Red and Yellow Atrophy of the Liver" (woman, æt. 34, with plate), ib., xxiii, 138. Wadham, "Case of Yellow Atrophy of the Liver" (man, æt. 28, autopsy), 'Lancet,' 1872, i, 288. Sieveking, "Acute Yellow Atrophy of the Liver, Death" (man, æt. 24, autopsy), ib., ii, 224. Jones, "A Case presenting the Symptoms of Acute Yellow Atrophy of the Liver, Recovery" (woman, æt. 26), 'Brit. Med. Journ.,' 1872, i, 468. Zenker, "Zur Pathologischen Anatomie der acuten gelben Leberatrophie" (with plate), 'Deut. Arch.,' x, 166. Steiner, "Ein Beitrag zur acuten Atrophie der Leber aus Fettdegeneration" (boy, æt. 10), 'Jahrb. f. Kinderheilk.,' iv, 428.

(*c*) *Interstitial Hepatitis—Cirrhosis.*

Olivier ("Mémoire pour servir à l'histoire de la Cirrhose hypertrophique," 'Union Méd.,' xii, 361) gives a case of cirrhosis of the liver in a man, æt. 22, a wine-seller. He had been a hard drinker since the age of 13; at the age of 18 he noticed that his belly was swollen; he had great digestive derangement, vomiting, epistaxis, and jaundice. His liver was enormously increased in size, extending to the umbilicus and to the spleen, which was also enlarged. After death the liver was found to weigh 2·850 grammes, and was markedly cirrhosed, the interlobular tissue having undergone considerable hypertrophy. The spleen and kidneys were also increased in size. The writer discusses the question of cirrhosis, collecting several cases of the affection in which the liver was enlarged, from other authors. He concludes that hypertrophic cirrhosis is a definite affection, not the first stage of an incomplete cirrhosis. It is more rare than the form in which the liver is atrophied. Like it, it is characterised anatomically by chronic proliferation of the cellular tissue and atrophy of the glandular substance from compression; but while in the atrophic form this proliferation ceases, in the hypertrophic form it is continuous, and to this incessant growth the enlargement of the liver is due. In addition to the ordinary symptoms of cirrhosis, the hypertrophic form presents an enlargement of the organ, either general, or only partial. According to his

observation it is accompanied by an early and profound change in the blood, under the influence of which occur various hæmorrhages, and jaundice more frequently than in the ordinary form. Its only cause is excessive alcoholic drink.

Cheadle ('Brit. Med. Journ.,' 1871, ii, 545) gives a clinical lecture on a case of extreme cirrhosis of the liver in a boy æt. 18. He had complained five months before of debility and wasting, which gradually increased. There was slight enlargement of the liver and spleen; ascites; œdema of the legs; wild delirium; paralysis of the right with spasmodic jerking of the left arm and leg, and death by coma. The cirrhosis of the liver was most extreme, the spleen was enormously enlarged and hard, the kidneys were congested, and their capsules adherent. There was an unusual quantity of dark pigment over the surface of the parietal peritoneum about the pelvic region. The boy had been in the habit of taking a considerable quantity of drink, especially gin, when at work. There was complete absence of jaundice throughout. Nothing was found in the brain to account for the cerebral symptoms.

Green also ('Trans. Path. Soc.,' xxiii, 133) records a case of interstitial hepatitis and obstruction of the common bile-duct in a boy, aged 10. Twelve days before death he vomited, became jaundiced, drowsy, and screamed at intervals; his pupils were dilated. He died comatose. The brain and thoracic organs were perfectly healthy. The stomach and small intestines contained a very large quantity of dark blood.

Moxon (ib., 153) describes a case in which suppuration took place in syphilitic deposits in the liver of a man aged 29. One of these had opened a large bile-duct, so that its substance was deeply stained with bile-pigment. The liver was extensively diseased, having in its upper and middle regions many masses which at first sight had the appearance of sarcomatous tumours decaying in the centre. They were enclosed in what appeared to be a fibrous cyst. From these soft masses there were gummata in all gradations down to common depressed syphilitic scars with caseous centres. The microscopic character of the soft formations was not very definite—crowds of cells larger than pus-cells in a granular filamentous matrix. One testis showed very characteristic gummatous syphylitic orchitis.

Rommelaere, "Cirrhose et Dégénérescence amyloïde du Foie" (woman, æt. 39, enlarged liver; lardaceous liver, spleen, and kidneys), 'Presse Méd. Belge,' 1871, 133. Eames, "Cirrhosis of the Liver" (drunkard, age not given), 'Dubl. Journ.,' liii, 495. Id., "Carnified Liver" (man, intemperate, age not given; liver, hard and dense, weighed 45 ounces), ib., 496. Morgan, "Syphilitic Deposit in the Liver, Ulceration of the Larynx" (man, age not given, gummatous deposits in liver and glands), ib., 231. Handfield Jones, "Case of Cirrhosis of the Liver, Hæmorrhage and Ascites, Paracentesis Twice, temporary amendment from Digitalis, Clinical Remarks" (man, æt. 34, formerly gin-drinker), 'Brit. Med. Journ.,' 1871, i, 219. Thompson, "Cirrhosis of the Liver" (man, æt. 59), ib., 1872, i, 113. Black, "Cirrhosis of Liver, Erysipelas" (man, æt. 26, autopsy), 'Lancet,' 1872, ii, 117. Crisp, "Incipient Cirrhosis of the Liver and Baggy Stomach" (woman, æt. 60), 'Path. Soc. Trans.,' xxiii, 137. Liveing, "Syphilitic Cirrhosis of the Liver and Caries of the Skull, associated with Amyloid Disease of the Abdominal Viscera, Chronic Phthisis, and Ulceration of the Colon" (man, æt. 21), ib., 144.

(*d*) *Carcinoma.*

Cases of cancer of the liver are recorded by the following writers:—Headland ('Lancet, 1871, i, 268) gives a case of primary medullary cancer existing only in the liver, and nowhere else, in a man aged 40; Smyth ('Brit. Med. Journal,' 1871, i, 421), scirrhous, in liver only, in a man aged 51; Simms, ('Path. Soc. Trans.,' xxiii, 135), soft cancer, in liver only, in a man aged 64. Gowers (ib., 145) gives notes of the case of a woman, aged 30, in whom growths of medullary sarcoma were found in the liver, lungs, and mamma. Church, who made a microscopical examination of the new tissues, thinks it probable that the disease originally began in the lumbar glands. Whipham (ib., xxii, 164) publishes the case of a woman, aged 64, in whom the liver, weighing 77 ounces, contained numerous growths, on an average about the size of a common marble. The microscope revealed an appearance as of gland-tubes lined in some portions, with columnar epithelium, and the writer refers the growth to the columnar-cell epithelioma described by Förster, Cornil and Ranvier, &c.

Perls, "Zur Histologie des Lebercarcinoms," 'Virch. Arch.,' lvi, 448. Gee, "Cancer of the Liver in an Infant," 'St. Barth. Hosp. Rep.,' vii, 143.

(*e*) *Echinococci.*

Murchison ('Path. Soc. Trans.,' xxiii, 129) gives the case of a man aged 45, whose abdomen during life presented a distinctly nodulated or botryoidal appearance, from the presence of numerous tumours. These tumours continued to increase in size, though no signs of any hooklet could be found in their contents on puncture. Ascites, enlargement of the abdominal veins and œdema of the feet, preceded death, which occurred rather suddenly. At the autopsy were found two enormous cysts in the liver, one in front, growing down from the under surface of the left lobe, and containing an enormous quantity of hydatid cysts, with a small quantity of thin pus, the entire contents measuring six pints. This cyst had been tapped during life. The other cyst was in the back part of the right lobe, and contained between four and five pints of thin opaque fluid, in which there was bile-pigment and a few hydatid cysts. Numerous smaller cysts were found in the liver and growing from the omentum and other parts of the peritoneum. Altogether there must have been many hundreds of them. There was one as large as a man's fist in the spleen, and another still larger in the left iliac region; another of the size of a large orange, and quite globular, was attached by a narrow pedicle below the umbilicus; and two as large as oranges, and with thick opaque white coats, lay quite loose in the peritoneal cavity in the right flank. Nothing was found to account for the patient's sudden death. The history of the case seems to leave little doubt that the disease commenced in the liver, and that it was not till after many years that the peritoneum was secondarily invaded.

Bouchut ('Gaz. des Hôp.,' 1872, 137) records the case of a girl aged 11, in whom he punctured a cyst in the liver with a capillary trocar.

He gives his reasons for looking upon the cyst as a serous and not an hydatid one. The girl got well.

Cleghorn ('Indian Med. Gaz.,' March, 1871, quoted in 'Lancet,' 1871, i, 624) believes that a considerable number of the hepatic abcesses that occur in India are due to suppurative changes taking place in old hydatid cysts.

Fagge and Durham, "On the Electrolytic Treatment of Hydatid Tumours of the Liver, with an Addendum on simple Acupuncture," 'Med.-Chir. Trans.,' liv, 1. Bahrdt, "Spontan geheilter Echinococcus der Leber mit Abgang der Blasen durch die Gallengänge und den Darm" (girl, æt. 26), 'Arch. d. Heilk.,' xiii, 467. Richet, "Observations sur les Kystes hydatiques du Foie traiteés par le Méthode des Caustiques, des larges Ouvertures, et des Injections astringentes et alcooliques," 'Gaz. des Hôp.,' 1872, 369. Widal, "Kyste hydatiques du Foie, Pleurésie concomitante du Côté droit, Ouverture et Extraction totale du Kyste, Guérison," ib., 457. Dieulafoy, "Du Diagnostic et du Traitement des Kystes hydatiques et des Abcés du Foie par l'Aspiration," ib., 385. Fox, "Hydatids of the Liver" (in girl, æt. 14, treated for six months with iodide of potassium, recovery), 'Brit. Med. Journ.,' 1871, i, 499. Duckworth, "Case of Hydatid Tumour of the Liver, with Icterus" (woman, æt. 25), ib., ii, 179. Hett, "Treatment of Hydatid Cysts by simple Tapping" (with very fine trocar, girl, æt. 7), 'Lancet,' 1871, i, 257. Duffin, "Hydatid of the Liver," ib., 1872, ii, 780. Murchison, "Multiple Hydatid Tumours of the Liver (?) and Peritoneum, in part successfully removed by operation" (woman, æt. 29), 'Path. Soc. Trans.,' xxiii, 126.

(*f*) *Affections of the Bile-ducts, &c.*

Decaisne ("Sur un Epidémie d'Ictére essentiel observé à Paris;" 'Gaz. des Hôp.,' 1872, 4; 'Gaz. Méd.,' 1872, 45) describes a kind of epidemic of jaundice which occurred in Paris and its immediate neighbourhood in the autumn of 1870. He himself had occasion to observe 28 cases, thus attacked, 17 males, and 11 females. The symptoms do not seem to have differed much from ordinary cases of jaundice. The ordinary period of the affection was about ten or eleven days.

McPherson ('Am. Journ. Med. Sci.,' lxi, 409) records the case, with autopsy, of a female, æt. 59, who suffered from biliary calculus, and in whom a fistulous passage extended from the cystic duct to the umbilicus, through which bile was discharged from time to time.

Murchison ('Path. Soc. Trans.,' xxii, 152) gives the particulars of a very interesting case of biliary fistula in the abdominal wall of a female, æt. 40, from which bile was discharged. The patient was alive at the time the notes were made.

Puglièse, "De l'Hydrate du Chloral dans les Coliques hépatiques," 'Lyon Méd.,' viii, 438. Noblet, "Observation d'un cas particulier d'Ictère," 'Gaz. des Hôp.,' 1871, 594. "D'Ictère simple et du Catarrhe des Voies biliaires" (revue), ib., 1872, 153. Féréol, "Ictère, chronique, Mort, Calculs du Canal cholédoque, Hémorrhagies internes" (woman, æt. 32, autopsy), ib., 259. Villard, 'Étude sur le Cancer des Voies biliaires,' Paris, 1871, pp. 104. Crucknell, "Malformation of the Gall-bladder and Hepatic Duct" (man, æt. 40), 'Path. Soc. Trans.,' xxii, 163. Nunneley, "Congenital Obliteration of the Hepatic Ducts" (boy, æt. 6 months), ib., xxiii, 152. Moxon, "Syphilitic Disease of the Liver suppurating and opening a Bile-duct" (man, æt. 29), ib., 153. Thorowgood, "Gall-stone" (woman, æt. 67), ib., 151. Murchison, "Sequel of a Case in which Gall-stones were discharged by a Fistulous Opening through the Abdominal Parietes" (cf. ib., xix, 260), ib., xxii, 154. Id., "Fistulous Communication between the Gall-bladder and Colon" (woman, æt. 60), ib., 158. Duckworth, "Case in which a Biliary Calculus was passed from the Umbilicus," ib., 157.

(*g*) *Various.*

Steffen ('Jahrb. f. Kinderheilk.,' v, 47) gives several tables of the size of the liver and spleen in children, from birth up to 14 years of age.

Robin presented to the Paris Academy of Science, March 18, 1872, some observations by Ritter on colourless bile. The author states that in all cases in which colourless bile was found, the hepatic cells had undergone more or less fatty degeneration.

Roy ('Lancet,' 1871, i, 10) gives a case of rupture of the liver and left kidney in a man, æt. 25, the effects of a fall. The liver had three or four rents, extending only a few lines into its substance, on its convex surface.

Steiner ('Jahrb. f. Kinderheilk.,' iv, 333) writes on the presence of blood in the peritoneal cavity of new-born children from superficial rupture of the liver and spleen. He remarks on the rarity of the affection, giving a case of each, and considers that congestive hyperæmia, and not disease of the liver, is the primary cause.

Other papers referring to the liver are—

Dalton, "Sugar Formation in the Liver," 'New York Med. Journ.,' xiv, 15. Bennett, "Report on further Experiments demonstrating that Mercury has no special action on the Liver," 'Brit. Med. Journ.,' 1871, i, 1. Habershon, "Lettsomian Lectures on the Pathology and Treatment of Diseases of the Liver," ib., 1872, ii, 31. Quincke, "Ein Fall von Aneurism der Leberarterie," 'Berl. Klin. Woch.,' 1871, 349. Ward, 'On some Affections of the Liver and Intestinal Canal, with Remarks on Ague and its Sequelæ, Scurvy, Purpura, &c.,' London, 1872. Fox, "On some Abnormal Conditions of the Liver accompanied by Jaundice," 'Brit. Med. Journ.,' 1872, ii, 8. Habershon, "Inflammation of Glisson's Capsule, Occlusion of Vena Portæ, Blood Cyst, Dropsy, Peritonitis" (woman, æt. 34), 'Guy's Hosp. Rep.,' xvi, 405. Solowieff, "Veränderungen in der Leber unter dem Einflusse der künstlichen Verstopfung der Pfortader," 'Centralbl.,' 1872, 337. Gee, "Complete Obliteration of the Mouths of the Hepatic Veins," 'St. Barth. Hosp. Rep.,' vii, 144. Bock and Hoffmann, "Ueber das mikrochemische Verhalten der Leberzellen," 'Virch. Arch.,' lvi, 201. Riegel, "Zur Casuistik der Missbildungen der Leber," 'Deut. Arch.,' xi, 113.

Affections of the Spleen.

Payne ('Path. Soc. Trans.,' xxii, 278) gives the following case of Hodgkin's disease complicated with acute tuberculosis. A boy, æt. 10, had presented during life great enlargement of the spleen, which reached from the seventh rib to the crest of the ilium vertically, behind into the lumbar region, and in front almost to the middle line. There was no increase in the number of the white blood-corpuscles. He became gradually weaker and died of exhaustion. The spleen was found to contain numerous tumours of the kind called lymphadenoma and infarctus. Small tumours of the same kind were found in the liver and right kidney. The lymphatic glands throughout the body were affected in the same way, and some of them contained masses of a soft caseous consistency, which would, had they occupied the whole of the gland, have caused it to be called scrofulous. There was, in fact, a distinct transition to the type of disease called by that name. In addition there were numerous miliary tubercles in the pia mater and lungs.

Moxon, "Case of Acute Splenitis (?) in a Syphilitic," 'Path. Soc. Trans.,' xxii, 274. Squire, "Specimen of Enlarged Spleen," ib., 276. Bisch-Hirschfeld, "Der Acute Milztumor," 'Arch. d. Heilk.,' xiii, 389. Mosler, "Ueber die Wirkung von Eucalyptus globulus auf die Milz," 'Deut. Arch.,' x, 159. Olga Stoff und Sophie Hasse, "Einige Notizen über die Circulations-Verhältnisse der Milz.," 'Centralbl.,' 1872, 753.

Affections of the Pancreas.

Pepper ('Amer. Journ. Med. Sci.,' lxi, 159) gives the following case. A man, æt. 45, of very intemperate habits, first noticed hæmorrhage from the bowels in the early part of 1870. This recurred from time to time, the last time in August of that year, when there was such rapid hæmorrhage into the stomach and bowels as to prove fatal in one hour. There was no vomiting at any time. At the autopsy marked but not extreme cirrhosis of the liver was found; the stomach and intestines contained a large amount of blood, which had entered them through an opening in the ductus communis choledochus. A probe passed through this opening directly entered a cavity in the head of the pancreas, which was filled with fluid blood and clots. From a microscopical examination of the head of the gland, which was enlarged and hardened, it was concluded that the specimen was a well-marked case of cirrhosis of the pancreas.

Affections of the Peritoneum.

Habershon ('Guy's Hosp. Rep.,' xvi, 418) gives two cases which show that abdominal pain may be due to old adhesions between the stomach and transverse colon. Both become limited in their movements, and whenever the one or the other becomes distended, pain is the result. In the first case, that of a man, aged nearly 60, there had been fixed pain in the region of the gall-bladder, without jaundice; death occurred from hæmorrhage. Old and firm adhesions were found between the liver, stomach, colon, and duodenum. The gall-bladder contained five irregular small calculi. In the second case, also a man of 60, the same pain without jaundice was present; the patient passed a considerable number of biliary calculi, and digital examination gave the idea that the duodenum and colon were adherent to the transverse colon and to the stomach. The patient recovered.

Giles ('Brit. Med. Journ.,' 1871, i, 447) traces the connection between gonorrhœa and peritonitis in women. He thinks that the gonorrhœal matter may readily come into direct contact with the peritoneal membrane through the Fallopian tubes. After childbirth or miscarriage this occurs with greater freedom, and in prostitutes neglected gonorrhœa, though with less facility, may in the same manner lead to peritonitis. The disease differs from puerperal peritonitis in its shorter duration and its usually successful termination. He gives a few cases in support of his views.

Dobson (ib., 475) draws attention to the fact that West in 1858 had put forward a similar view in speaking of acute uterine inflammation.

Dickinson ('Path. Soc. Trans.,' xii, 287, 296) publishes two very interesting cases. In one, a boy 3½ years of age, a tumour of the

lumbar glands occupied almost the entire right half of the abdominal cavity. In the other, a girl, aged 2 years, the left half of that cavity was nearly filled by a mesenteric tumour. A full report of the microscopical appearance of both tumours is given.

Vigla, "Péritonite granuleuse" (man, æt. 21, autopsy), 'Gaz. des Hôp.,' 1871, 253. Hérard, "Péritonite chronique" (man, æt. 39), ib., 264. Lange, "Eigenthumlicher Verlauf einer Peritonitis," 'Berl. Klin. Woch.,' 1871, 74. Id., "Peritonitis mit Periorchitis bei einem 3 Wochen alten Knaben," ib., ib. Egan, "Peritonitis Meretricium," 'Brit. Med. Journ.,' 1871, i, 475. Murchison, "Multiple Hydatid Tumours of the Liver (?) and Peritoneum, in part successfully Removed by Operation" (woman, æt. 29), 'Path. Soc. Trans.,' xxiii, 126. Id., "Multiple Hydatid Tumours of the Liver and Peritoneum" (man, æt. 45), ib., 129. Greenhow, "Loose Tumours from the Peritoneal Cavity," ib., 241. Southey, "Old Peritoneal Adhesions interfering with the Rise of the Uterus into the Abdomen at the Fourth Month of Pregnancy; Cystitis; Retention of Urine; Distension of the Bladder; Death from General Peritonitis" (with autopsy), 'Lancet,' 1871, i, 610.

Affections of the Kidney.

(*a*) *Nephritis.*—Wood, writing on acute dropsy, scarlatinal and idiopathic ('Am. Journ. Med. Sci.,' lxii, 75), attempts to show that a large proportion, if not all, cases of this kind, are due not to a mechanical impediment to the circulation, but to a peculiar condition of the cellular tissue, whereby its natural secretion or exhalation is enhanced, so that the water may be said to be actively thrown or drawn out from the vessels. From a review of different cases and writers he concludes—1. That in acute Bright's disease, whether originating from scarlet fever, arsenical poisoning, or cold, the dropsy is not a result of the kidney disease, but with the latter is dependent upon a common cause. 2. That an irritant poison, organic or otherwise, may give rise to dropsy without any appreciable organic disease. 3. That exposure to cold and wet may produce dropsy, without other disease, and that there is, therefore, such an affection as idiopathic dropsy. 4. That acute dropsy is mostly, if not always, the result of irritation of the cellular tissue.

G. Johnson ('Brit. Med. Journ.,' 1871, i, 3), in a "Lecture on the Diagnosis and Prognosis in cases of Bright's Disease," insists upon the necessity of a careful examination of the urine in all cases of deranged health. The urine in cases of the acute affection is usually scanty, of normal specific gravity, more or less blood-tinged, highly albuminous, and contains numerous epithelial and blood-casts, with scattered renal epithelium and blood-discs. The hæmaturia of acute Bright's disease is distinguished from that of renal calculus by the presence of these casts. Small and large hyaline casts also occur, the latter moulded in tubes from which the gland-cells have been removed, the former from those whose walls were still covered by them. Another form of tube-cast is that which contains small round cells with compound nuclei (exudation-cells). The appearance of these in great numbers is a less favourable sign than when epithelial casts alone are present. In some undoubted cases of acute Bright's disease the urine, though highly albuminous, contains no blood and retains its normal colour. When symptoms of the disease have continued beyond a month or six weeks, more or less

oil begins to appear in the casts and in the desquamated epithelium. Johnson has, however, seen cases of recovery even after the presence of oily casts and cells. The disease is essentially a curable one; its prognosis more favorable in the young and middle-aged than in the old, and in those who are able to avoid exposure to cold and other bad influences. Among the earliest signs of amendment are a copious secretion of urine, paler and of lower specific gravity, and decrease of dropsy. The albumen is usually the last symptom to disappear. If the urine continues albuminous for more than six months the prognosis is more doubtful, but such cases do get well. Scanty secretion of highly albuminous urine, frequent and distressing vomiting, dropsical effusion into the serous cavities, are all symptoms of grave though not fatal import. Recovery sometimes occurs, in the acute disease, after the most formidable symptoms of uræmic poisoning have been present.

Gull and Sutton publish ('Med.-Chir. Trans.,' lv, 273) a paper on Bright's disease with contracted kidney (arterio-capillary fibrosis) in which they arrive at the following conclusions:—(1) There is a diseased state characterised by hyalin-fibroid formation in the arterioles and capillaries. (2) This morbid change is attended with atrophy of the subjacent tissues. (3) It is probable that this morbid change commonly begins in the kidney, but there is evidence of its beginning primarily in other organs. (4) The contraction and atrophy of the kidney are but part and parcel of the general morbid change. (5) The kidneys may be but little if at all affected, whilst the morbid change is far advanced in other organs. (6) This morbid change in the arterioles and capillaries is the primary and essential condition of the morbid state called chronic Bright's disease with contracted kidney. (7) The clinical history varies according to the organs primarily and chiefly affected. (8) In the present state of our knowledge we cannot refer the vascular changes to an antecedent change in the blood due to defective renal excretion. (9) The kidneys may undergo extreme degenerative changes without being attended by the cardio-vascular and other lesions characteristic of the condition known as chronic Bright's disease. (10) The morbid state under discussion is allied with the conditions of old age, and its area may be said hypothetically to correspond to the "area vasculosa." (11) The changes, though allied with senile alterations, are probably due to distinct causes not yet ascertained.

Johnson, in a paper read before the same society ('Med. Times and Gaz.,' 1872, ii, 688; 'Lancet,' 1872, ii, 882), strongly opposes the views of these writers, and maintains that the appearances noticed by them are due to distension of the coats of the vessels by the reagents employed.

Roberts ('Brit. Med. Journ.,' 1871, ii, 521) opposes Dickinson's view that the abuse of alcohol is not one of the most important causes of Bright's disease, and gives a table of the proportional number of deaths from intemperance, from diseases of the kidney, and diseases of the liver in different districts.

Bradley (ib., i, 116) relates the case of a child, four months old, covered with syphilitic psoriasis, whose urine was highly albuminous, and whose face, arms, and legs were œdematous. The microscope

revealed the presence of numerous epithelial and granular casts. All the symptoms disappeared under the employment of mercury. He looks upon the case as one of syphilitic renal dropsy.

Johnson (ib., 1872, i, 256) publishes a clinical lecture on a case of chronic Bright's disease in an intemperate woman, æt. 46, who died of rapidly fatal apoplexy. He gives some engravings of the thickened arteries from the kidney and the subcutaneous tissue. A large portion of the right hemisphere on a level with the lateral ventricle was excavated by effused blood; the outer margins of the corpus striatum and optic thalamus were partly broken down by the clot, and the blood had passed through the torn septum into the left ventricle.

Broadbent ('Lancet,' 1872, i, 103) gives a clinical lecture on a case of renal disease ending in apoplexy in a woman who two years previously had had a left-sided hemiplegia during pregnancy. She was again pregnant at the time of her death. The autopsy showed contracted granular kidneys; an enormous heart, weighing 19 ounces with healthy valves, and muscular hypertrophy of the minute arterioles. A clot lay to the outer side of the right corpus striatum and thalamus, and had torn through the fibres passing from them into the hemisphere. It extended along nearly the whole length of the ganglia, but did not turn round the anterior end of the corpus striatum. Its upper part was on a level with the intra-ventricular surface of these bodies. Inferiorly it was separated by a very thin stratum of nervous matter from the fissure of Sylvius, the source of the bleeding being probably the small branches of the middle cerebral artery here penetrating the brain substance.

Moxon ('Brit. Med. Journ.,' 1872, i, 637) records a case of extreme granular degeneration of the kidneys, without hypertrophy of the heart. The subject of it was a man, æt. 72, whose death was due to an accident. He thinks it very probable that some atrophic kidneys commence in a congenitally imperfect structure, and supports his view by an opinion of Virchow's ('Krankh. Geschw.,' Bd. i) as to the continuation into later life of a *partial* fœtal degeneration.

Murchison ('Path. Soc. Trans.,' xxii, 177) records a remarkable case of fatal uræmia from atrophied kidney in a footman, æt. 18, of temperate habits. Ten days before admission into hospital, having been previously healthy, with the exception of pain and swelling in the throat with dysphagia five years before, he was seized rather suddenly with pain at the pit of the stomach, palpitations and dyspnœa on exertion. Five days later he complained of shivering and pain in the loins, and after that became very drowsy. On admission he presented no sign of chronic disease, no notable anæmia, no œdema. There was nothing abnormal to be discovered in the lungs; no eruption. His temperature was 95·4° F. The urine drawn off by a catheter was colourless, limpid, sp. gr. 1007, and contained a small trace of albumen. The drowsiness and the amount of urine increased; the temperature remained below normal. On the fifth day of his stay in hospital he died comatose, after one or two fits of general convulsions. All the organs were found healthy except the kidneys, of which the right weighed 1¼ oz. and the left ¾ oz. The capsules were adherent, and the microscope revealed the ordinary

characters of granular contracted kidney. The blood from the cerebral sinuses and veins contained urea.

Stohr ('Deut. Klin.,' viii, 467) employed transfusion in three cases of uræmia. In the first case death was imminent, but the patient lived thirteen days after the operation. The second died in sixty-four hours, and the third in six hours after the transfusion. In the first two the urine passed after the operation contained blood-colouring matter, but no blood-cells.

Finney ('Dub. Journ.,' lii, 245) showed cirrhosed kidneys from a man, æt. 20, who had passed urine in such large quantities as to suggest at first the possible existence of diabetes.

Stewart, "Notes of a Case of Inflammatory Bright's Disease; Fatal in third stage" (man, æt. 31), 'Brit. Med. Journ.,' 1872, ii, 94 (and cf. 'Edin. Journ.,' xvi, 1093). Ackermann, "Ein Fall von Parenchymatöse Nephritis mit Retention der Cylinder in den Nierenkelchen und in Nierenbecken" (man, æt. 20, with plate), 'Deut. Arch.,' x, 298. Dujardin-Beaumetz, and Hardy, "Note sur un cas d'Urémie," 'Union Méd.,' xiv, 130. Moxon, "Case of Gouty Granular Kidneys and Irruptive Pneumonia; Fatal by Acute Œdema of the Larynx and Lungs," 'Lancet,' 1871, ii, 217. De Giovanni, "Pneumonite e Nephrite" (three cases), 'Gaz. Méd. Lomb.,' 1872, 261. Lambert, "Ophthalmoscopic Diagnosis of Bright's Disease," 'Lancet,' 1872, i, 321. Guéneau de Mussy, "Étude sur le Traitement de quelques Albuminuries," 'Gaz. des Hôp.,' 1871, 473. Handfield Jones, "Clinical Lecture on instances of Successful Treatment of Degenerative Disease of the Kidneys," 'Med. Times and Gaz.,' 1871, ii, 151. Morris, "On the Use of the Turkish Bath in Albuminuria," 'Brit. Med. Journ.,' 1871, i, 193. Bradbury, "Remarks on a Case of Bright's Disease," ib., 1872, ii, 37.

(*b*) *Hæmaturia, &c.*—Pavy ('Brit. Med. Journ.,' 1871, i, 66) read to the Clinical Society notes of a case of paroxysmal hæmaturia, and exhibited specimens of the urine. The patient, previously in good health, was seized, after exposure to cold, with nausea. His urine was the colour of porter, but after rest in bed gradually became normal. Exposure to cold eleven days later brought on another relapse. During the paroxysms the urine contained coloured granules and crystals of oxalate of lime, but no casts or blood-cells. He insists on the case being distinct from one of ordinary hæmaturia.

Stevens (ib., ii, 323) gives a case of "intermittent hæmaturia" of more than twenty years' duration in a woman æt. 75.

Drysdale, "Hæmaturia ending fatally" (male, æt. 73, autopsy), 'Med. Press and Circ.,' 1872, i, 36. Harley, "Endemic Hæmaturia of the South-Eastern Coast of Africa," 'Med.-Chir. Trans.,' liv, 45. Ogle, "Hæmaturia" (man, æt. 61), 'Lancet,' 1871, ii, 540. Cobbold, "On the Development of Bilharzia Hæmatobia, together with Remarks on the Ova of another Urinary Parasite (the so-called Trichina cystica of Dr. Salisbury), occurring in a Case of Hæmaturia from Natal," 'Brit. Med. Journ.,' 1872, ii, 89. Couto, 'Hæmaturia endemica dos paizes quentes,' Bahia, 1872.

(*c*) *Hypertrophied Kidneys—Hydatids, &c.*—Rosenstein ('Virch. Arch.,' liii, 141) has made experiments on dogs and rabbits, with a view of proving whether compensatory hypertrophy really takes place in one kidney when, from some cause or other, the other kidney ceases to perform its functions. At the same time his experiments throw some light upon the share which the kidneys take in the formation of urea. He starts with the fact that the size of the

right kidney to the left is, speaking generally, as 1·12 to 1. The animals bore the extirpation of one kidney well on the whole; on removal of the other they died with uræmic symptoms. The second kidney, though removed a long time after the first, was not always hypertrophied, and when it was so the enlargement bore no proportion to the period between the two operations. The increase was chiefly in weight, not in an alteration in the glomeruli and cortical substance. When the animals ate well, as they frequently did, after the operation, the amount of urea excreted on the second day was almost the same, and from this fact Rosenstein concludes that the kidneys take no share in the production of urea, inasmuch as it is impossible to conceive that the remaining kidney could in so short a time take on an increased process in the work of excretion.

Perl (ib., lvi, 305) sums up his paper on the same subject as follows:—(1) The physiological growth of the kidney is essentially a hyperplasia; the vessels alone undergo a true increase in size. (2) The compensatory enlargement is a true hypertrophy. (3) The various elements of the organ take a different share in this hypertrophy, the convoluted tubes and their epithelium are most concerned in it; the straight tubes, as well as the Malpighian corpuscles, apparently not at all.

Shepherd ('Lancet,' 1872, i, 646) records the occurrence of hydatids in the kidney in a man, æt. 51, in whom the disappearance of a tumour in the left flank was accompanied by the passage of the cysts per urethram.

Sawyer, 'Floating Kidney, its Causes, Diagnosis and Treatment' (all in women), Birmingham, 1872. Ferber, "Zur Pathologie der beweglichen Niere," 'Virch. Arch.,' lii, 95. Jago, "Movable Kidneys," 'Med. Times and Gaz.,' 1872, ii, 328. Longuet, "Case of Hydatid Cyst of the Right Kidney simulating Ovarian Cyst," 'Lancet,' 1872, ii, 713 (quoted from 'Mouvement Médical,' of Nov. 9). Eberth, "Myoma Sarcomatodes Renum" (female child, æt. 17 months), 'Virch. Arch.,' lv, 518. Morris, "Cyst connected with the Left Kidney, associated with Medullary Cancer of the Liver, Lungs and Left Kidney" (man, æt. 69), 'Path. Soc. Trans.,' xxii, 171. Trotter, "Encephaloid Disease of the Kidneys" (man, æt. 30), ib., 173. Heywood Smith, "Unnatural Extension of Kidney" (left, weighing 9 pounds, from a woman, æt. 27, suffering from pyonephrosis and calculus), ib., 174. Pye-Smith, "Stricture of the Ureter and Dilatation of the Kidney, apparently of Traumatic Origin" (man, æt. 24), ib., xxiii, 159. Whipham, "Lymphadenoma of the Kidney" (woman, æt. 43), ib., 166. Leared, "Renal Calculi of Cystic Oxide" (from woman, æt. 30), ib., 165. M'Carthy, "An Account of some Renal Calculi of Unusual Shape found in the Left Kidney of a Woman who died of Cancer of the Uterus," 'Med.-Chir. Trans.,' lv, 263.

Other papers referring to the kidney are—

Unruh, "Ueber Blutungen in Nierenbecken und Ureteren bei Pocken," 'Arch. d. Heilk.,' xiv, 289. Eberth, "Ueber die Muskeln der Niere," 'Centralbl.,' 1872, 225. Lipsky, "Ueber die Entzündlichen Veränderungen des Epithels der Harncanälchen," 'Wien. Med. Jahrb.,' 1872, 155. Prescott Hewett, "Ruptured or Lacerated Kidney from a Railway Accident," &c., 'Brit. Med. Journ.,' 1871, ii, 722. Chunder Roy, "Rupture of Liver and Left Kidney" (from fall), 'Lancet,' 1871, i, 11. Rovida, "Intorno all'origine dei cilindri dell'urina," 'Gaz. Méd. Lomb.,' 1872, 285. Letzerich, "Ueber Nephritis Diphtheritica," 'Virch. Arch.,' lv, 324. Browning, "Diphtheritic Albuminuria," 'Brit. Med. Journ.,' 1872, ii, 95. G. Johnson, "Clinical Lecture on Dropsy," ib., 1871, ii, 723. Taylor, "A Case of Acute Dropsy without Albuminuria," 'Med. Times and Gaz.,' 1871, ii. Steffen, "Zur Wirkung der heissen Bäder bei Hydrops," 'Jahrb. f. Kinderheilk.,' iv, 317.

Analysis of Urine, &c.

Wernich ("Ueber postmortale Harnansammlung," 'Centralbl.,' 1871, 658) gives the results of certain experiments. He removed the urine by means of a catheter in a number of women a quarter or half an hour before death; at the autopsy he found from 30 to 50 grammes of cloudy urine in the bladder. In one case in which death took place almost while the operation was being performed, and in which the bladder apparently contained not a single drop, over a table-spoonful was withdrawn with a catheter eight hours after death.

Falck ('Virch. Arch.,' liii, 282) finds from experiments that urea injected into the blood of dogs is passed unchanged with the urine in the course of the following hours. In a third section (s. 315) he gives a full historical review of researches into the physiology of urea.

Seegen ('Pflüger's Arch.,' v, 359) opposes the views of Brücke, Kühne and others, as to the presence of sugar in normal urine, and decides from his own experiments that none is present in the healthy state, and that continued excretion of even very small quantities is accompanied by all the symptoms of diabetes.

The same writer ('Brit. Med. Journ.,' 1872, i, 469, and cf. 'Centralbl.,' 1872, 68), while considering that Trommer's is the most delicate test for sugar, asserts that its delicacy only holds good with a watery solution of sugar. For this reason he filters the urine through animal charcoal, which retains most of the constituents of the urine, more especially the colouring matters and uric acid, these substances preventing the precipitation of the suboxide when it is formed. Having filtered the urine several times till it is completely colourless, he washes the charcoal on the filter with a little distilled water, and to this water, when filtered off, he applies Trommer's test. In this way he can detect 0·1 per cent. of sugar. For quantitative analysis this filtration cannot be performed, as the charcoal always retains a certain quantity of sugar which cannot be removed again by washing.

Barclay ('Lancet,' 1871, ii, 117) writes on the chemical relations of urates and phosphates. Years before, he had been puzzled by the presence of phosphatic deposit in decidedly acid urine. In a case which he now records of severe diarrhœa the neutral urine contained a turbid flocculent deposit insoluble by heat, but dissolved by acid in combination with heat, insoluble also by acid without heat. The microscope showed the presence of globular, highly refracting urates, with some crystals of oxalate of lime.

Wanklyn ('Brit. Med. Journ.,' 1872, i, 133) shows that, though the strength of the urine in health is subject to great variation, a certain relation is maintained between the mineral matter (salts) and the organic matter existing in the urine. In five specimens of healthy urine there was never a larger proportion of organic matter than 1·7 times as much as the mineral matter. In disease, on the other hand, the proportion of organic matter is increased.

Traube ('Berl. Klin. Woch.,' 1871, 333) gives the following as differential tests in deciding whether blood contained in urine has come

from the kidneys or the ureters. In the former case (1) the microscope shows in the urine rings with colourless contents, and a double or single outline smaller than normal blood-cells. The altered blood-corpuscles do not occur in hæmorrhages from the ureters. (2) The colouring matter of the blood-cells is soluble in urine, and the latter exhibits dichroismus, on account of the solution in it of hæmoglobin free from oxygen. The first appearances are explained by the fact that the blood-cells have lingered some time in the so-called tubes of Bellini. Generally cylinders also occur, composed of blood-cells in rolls, the diameter of which proves them to be true casts of the same tubes.

Laborde, "Augmentation de l'Urée dans certaines Maladies," 'Gaz. Méd.,' 1871, 522. Fowler, "Quantitative Analysis of Urea," 'New York. Med. Journ.,' xvi, 277. Maly, "Zur Bestimmung der Harnsäure," 'Pfluger's Arch.,' vi, 201. Salkowski, "Die Bestimmung der Harnsäure," ib., v, 210. Gaethgens, "Zur Frage der Ausscheidung freier Säuren durch den Harn," 'Centralbl.,' 1872, 833. Seegen, "Ueber eine Methode, minimale Mengen Zucker in Harn mit grosseren Sicherheit nachzuweisen," ib., 68. Manassein, "Ueber Quantitative Bestimmung des Zuckers in diabetischen Harne nach dem Unterschiede im specifischen Gewichte des Harns vor und nach der Gährung," 'Deut. Arch.,' x, 73. Liborius, "Beiträge zur Quantitativen Eiweissbestimmung," ib., 319. Treskin, "Die Veränderungen des Harnes bei längerem Verweilen in der Blase," 'Centralbl.,' 1872, 147. Jaffe, "Ueber den Ursprung des Indicans in Harns," ib., 2. Soborow, "Ueber die Kalkausscheidung im Harn," ib., 609. Méhu, "Étude sur une Urine à Sédiment violet," 'Bull. Gén. de Thérap.,' lxxxiii, 260. Lebon, "Sur la Xanthine et sa récherche dans les Calcus vesicaux," 'Compt. Rend.,' lxxiii, 47. Thompson, "Diagnosis by Examination of Urine in obscure forms of Urinary Disease," 'Brit. Med. Journ.,' 1871, i, 6. Tidy and Woodman, "On Ammonia in the Urine in Health and Disease," 'Lancet,' 1872, i, 809. Treskin, "Ueber die Anwendbarkeit der Methode zur Harnstoffbestimmung von Bunsen für das Blut.," 'Virch. Arch.,' lv, 488. Rosentein, "Das Kohlensäure Ammoniak und die Urämie," ib., lvi, 383. Leared, "Renal Calculi of Cystic Oxide" (from woman, æt. 30), 'Path. Soc. Trans.,' xxiii, 165.

G. AFFECTIONS OF THE SKIN.*

General.—Neumann ('Wien. Med. Zeitg.,' 1871, 295) writes on the changes found in the involuntary muscles of the skin in cutaneous affections. In variola he finds always great increase in size, perfectly distinct from the true hypertrophy of the muscles which Derby, Rossbach, Körner and others, have shown to be present in lichen ruber, icthyosis, elephantiasis arabum, prurigo, and sclerema adultorum. It is impossible to decide whether in these cases we have to deal with an hypertrophy or an hyperplasia; the individual fibres, as well as the rod-like nuclei, are very much enlarged, and with them the whole muscle. Derby refers this increase in size to increased muscular exertion in pressing out the secretion from follicles with narrowed openings. In addition to this hypertrophy there is atrophy of both muscle-cells and nuclei.

Smith ('Dub. Journ.,' lii, 353) gives an analysis of 1100 cases of skin disease treated at the Adelaide Hospital, Dublin, since September,

* Simplicity is not to be laid to the charge of writers on diseases of the skin. No one but the entomologist can rival them in the smallness of their distinctions: their varieties, like those of insects, are already distinguished by the names of the authors who had the good (!) fortune to describe them first.—A. B. S.

1869. The table includes examples of all the common, almost all the less common, and one or two of the rare diseases, such as "alopecia areata, ichthyosis, keloid, leucoderma, molluscum sebaceum, pemphigus, purpura, favus, urticaria, and one or two others." (Some of these may be uncommon in Ireland—*Rep.*) The writer touches upon what he considers to be points of special interest in some of the affections, and gives his treatment.

Anderson ('Lancet,' 1871, ii, 672, &c.) gives an analysis of 11,000 consecutive cases of skin diseases. A few of the more interesting cases are abstracted in the text below. Reference must be made to the paper itself for his classification of his cases, which are divided into functional and organic diseases, the latter again frequently subdivided. The most frequent affection of the skin by far was eczema, of which their were 2875 cases; erythema was met with in 569; ecthyma in 97; psoriasis in 831; acne in 342; pemphigus in 16. A few cases of somewhat rare occurrence are described.

Guéneau de Mussy ('Gaz. des Hôp.,' 1871, 413) writes on the symmetrical distribution of affections of the skin, with special reference to a case of symmetrical erysipelas of the face occurring in a male patient. He thinks the case confirms the law laid down by Graves ('Clin. Lect.,' 2nd ed., ii, 327) that when this affection commences in the median line it is developed symmetrically on each side of it. He commences his paper by asserting that this tendency to symmetry is a law of normal organic evolution which reveals itself often under pathological conditions. For instance, decay of a tooth on one side is often followed by decay of the corresponding tooth on the other side; the same result occurs in affections of the eye, in gout and rheumatism, in the eruptive fevers, and in several cutaneous diseases. In his case the erysipelas commenced on the back of the nose, and spread to the two sides symmetrically. On the third day it extended over the forehead, leaving two triangular spaces perfectly free. On the left side the triangle corresponded with an old cicatrix, the remains of a wound which had divided the integuments down to the bone. No lesion was present on the opposite side, and yet the erysipelas affected the same portion and dimensions of skin, &c., in the same form as on that side. In seven days the erysipelas had disappeared, and the patient was well.

Erythema.—Lipp ("Beitrag zur Kenntniss des Erythema exsudativum multiforme, Hebra," 'Arch. f. Derm. und Syph.,' iii, 221) treated this affection in 17 women and 2 men. It was preceded by pyrexia, rigors, malaise, and restlessness. It put on various appearances, small or large nodes, patches resembling erythema annulare and gyratum, or punctated spots arranged in circles or half circles. In two cases there were bullæ, and in one pustules. The affection attacked any part of the body, and several times the mucous membrane, proceeding to ulceration and loss of tissue. The feverish symptoms were present in almost all cases, lasting for 18 days, and sometimes recurring. In one case there was endocarditis and pleurisy, in nine rheumatic symptoms, and in several cases constitutional syphilis.

Wilson ('Brit. Med. Journ.,' 1871, ii, 34) gives a case of erythema

solare, affecting the face and hands on exposure to the sun, in a woman æt. 38. During the seven years she noticed this symptom she found that her skin was remarkably free from sweat. Wilson thinks the case necessarily recalls pellagra.

Herpes.—Wyss ('Arch. d. Heilk.,' xii, 261) reviews the literature of herpes zoster, and gives the case of a man, æt. 68, who, previously well, was attacked with headache and symptoms of general febrile disturbance. Three days later vesicles of herpes labialis appeared. Next day redness showed itself about the right eye and forehead, the nose, the right ear and cheek, as far as the border of the lower jaw, and extended to the other side of the face. There was no pyrexia, nor was there increased heat of the affected parts. Two or three days later vesicles of herpes appeared on the right side of the face, the right cornea and conjunctiva. Eleven days after the first symptom the patient became unconscious and died. At the autopsy the vesicles and scabs of herpes were found to be entirely limited to the right side and to the parts supplied by the first branch of the fifth nerve. The latter was broader and thicker than the corresponding nerves on the left side, of a deep grey colour, soft, and with its fibres separated by a greyish-red soft tissue, abundantly supplied by vessels. This change was found throughout its course from its entrance into the orbit to its finest ramifications. Traced backwards as far as the Gasserian gangloin, it was found surrounded by extravasated blood, but on the other side of the ganglion it appeared to be normal. The ganglion itself was larger and softer than the left, and its substance was bright red, with a mass of ecchymosis on its inner side. Great increase of cell-growth was found in the cornea and in the layers of the skin. Wyss concludes that herpes zoster is a typical affection of the skin, set up by inflammation of the Gasserian or a spinal ganglion, and of the nerve passing through it. Both ganglion and nerve may be only partially effected; this would explain those cases in which only a branch, and not an entire nerve, is found to be the seat of herpes.

Sichel ('L'Union Méd.,' xii, 580) reviews the literature of herpes zoster frontalis, to which, according to him, but little attention has been as yet paid among French writers. It has been confounded with erysipelas and certain syphilitic affections (corona veneris). It never passes the median line, and is always limited to one half of the forehead or face, and always follows the distribution of certain nerves, curiously presenting the form of a fan when it appears over the branches of the infra-orbital nerve. In other particulars his description does not differ from that of Hutchinson and other writers in England. The affection is characterised by symptoms of gastric disturbance and of hyperæsthesia followed by anæsthesia; it is generally accompanied by insomnia and loss of appetite, often by falling off of the hair; generally it attacks persons of a gouty or rheumatic temperament, in whom constipation is the rule. The usual termination is favourable. He concludes his paper by giving the notes of three cases.

Parrot ('Gaz. Hebd.,' viii, 374) attempts to prove that there is a morbid condition to which he gives the name "herpetic fever," under which should be included the majority of cases described as synochial, ephemeral, gastric and other fevers (*fièvre angioténique* and *angine*

herpètique); that this morbid condition is characterised by the presence of various herpetic eruptions and by an acute lobular pneumonia, to which the name herpetic pneumonia should be given; that the whole of the affections named have a common bond in the disturbance of the nervous system, and that in febrile affections the appearance of herpes is almost always a favourable prognostic sign.

An account is given ('Lancet,' 1872, i, 399) of a case of herpes impetiginiformis under the care of Hebra. The patient was a woman aged 25, in the ninth month of her second pregnancy. This was only the fifth case Hebra had seen. They all occurred in women at full time, except one, which took place during the course of pregnancy; the first four all terminated fatally. They all resembled one another in beginning in the region of the genitals, in the general diffusion over the body in a later stage, and in the herpetic character (groups of vesicles on the same inflamed base) which they presented. They were all accompanied by fever and rigors. There was no restriction to the course of certain nerves.

Broadbent ('Brit. Med. Jour.,' 1871, i, 444) relates the case of a man, aged 39, who presented on the right side of the neck an eruption exactly resembling that of herpes zoster of the region of the cervical plexus, and was at the same time the subject of factitious urticaria. On drawing the back of the finger-nail sharply across the skin there was produced immediately a broad line of elevated hair-follicles; this subsided, and in two minutes was succeeded by a similar line of elevated hair-roots, but this time of a bright red colour, which in four minutes and a half or five minutes had developed itself into a long, smooth, elevated wheal of urticaria, pale, with red margins. In ten or twelve minutes the mark had almost faded again.

Pemphigus.—Bumstead ('Am. Jour. Med. Sci.,' lxii, 99) records the following case of pemphigus produced by the administration of iodide of potassium. A man, aged 28, with an imperfect history of syphilis, and with ecthymatous ulcerations on his legs, complained, after taking three doses, each containing 20 grains of the drug, of heat and a burning sensation in his face and hands, which were observed to be reddened. Next day large bullæ appeared on the exposed parts of his body, and the patient affirmed that on three previous occasions he had taken the iodide with the same result.

Psoriasis.—Buck ('Berl. Klin. Woch.,' 1872, 161) treats psoriasis as follows. The patient is placed in warm soap-baths to soften and loosen the epidermis; the scales are then removed with a soft brush, and the parts attacked by the eruption dabbed with acetic acid, at first once a day, and afterwards as often and as strenuously as the patient is willing and able to support the pain caused by the application. The dark colour of the skin caused at first soon disappears, and no scar remains.

Pollock ('Lancet,' 1871, i, 683) records a case of psoriasis guttata in a woman, æt. 43. The disease had existed, according to her own account, for the last twenty years. She strongly denied the possibility of any syphilitic taint. Ten grains of iodide of potassium were given her three times a day, and a lotion of equal parts of glycerine and water

was kept constantly applied. On the fiftieth day there was no rash whatever, nor did it return.

Pityriasis.—T. Fox ('Path. Soc. Trans.,' xxii, 313) showed a man, æt. 49, who presented the condition originally described by Devergie under the term "pityriasis pilaris," in a perfect form. Six months previously he had been attacked with pityriasis rubra, which within a week from its commencement involved the whole body. After a general tonic treatment of six months' duration, the appearance of pityriasis pilaris was produced by the interfollicular portions of the skin gradually assuming a healthy appearance, whilst every follicle remained plugged and distended by little whitish, hard knots, the size of pins' heads, and slightly larger, which gave the surface, in certain parts, the feel and aspect of a rasp or nutmeg grater. This condition was observed at the back of the neck, all over the back, over the chest, on the outer parts of the arms. In tracing the disease from the lower limbs upwards transitional stages between pityriasis rubra and pilaris were observed. The disease began to break up into patches by the appearance of healthy islets of skin here and there; at other places were red papules more or less isolated. These latter were seen to be produced by the distension of hair-follicles by plugs of epidermis, which had been shed from the lining membrane of the follicle. The condition found completely confirmed the truth of Devergie's description.

The same writer ('Brit. Med. Journ.,' 1871, i, 392) publishes a clinical lecture on lichen ruber with reference to a case occurring in his own practice. A woman, æt. 46, had been well up to the age of 38, when she became subject to boils and severe onychia. Two years and a half later an attack of lichen ruber commenced, with intense itching and redness of both eyes. At the end of eighteen months the face began to redden considerably; she complained of excessive debility. Nine months subsequently the redness had spread to the head, neck, and back, and the reddened parts were somewhat scaly. Soon the whole body was affected. The redness was removable by pressure, and was accompanied by burning and itching, especially towards evening and morning. The patient had suffered for the last year or two from "neuralgia" in the shoulders and arms, indigestion, and menorrhagia. She was admitted into hospital in November, 1869. She was then thin. At various times during the day the skin was the seat of considerable itching whenever the eruption was present; this irritation was paroxysmal, lasting half an hour or more. The colour of the face was deep red; the skin dry, wrinkled, and indurated, resembling xeroderma. The whole of the scalp was reddened, and covered by minute scales; the hairs were normal. From the back of the head to the scapula the skin appeared to be discoloured by a minute subcutaneous mottling, due to the presence of small reddish-brown flattish papules, of the size of pins' heads, seated at the follicles, and covered by exceedingly minute white scales. The front of the whole of the chest and the abdomen was marked by the same appearance, except round the umbilicus and the lower part of the abdomen. On the back of the thighs the papulation was still more marked; the leg was very rough below the knee; the scales were confluent over the ankle. The

arms were affected in the same way. The nails were thin and their roots red. The soles of the feet and the palms of the hands were free from disease; the extensor surfaces of the fingers were red, indurated, scaly, and showed a disposition to crack. During her stay in hospital the patient improved greatly in every way, but had a relapse in May, 1870, from which she again recovered. Fox considers the case to be one of well-marked pityriasis rubra, due to "a general congestive condition, dependent upon perversion of the regulative influence of the nervous system." There was "active dilatation of the minute blood-vessels, followed by effusion of plastic matter into and about the follicles, hypertrophic growth of the root-sheath, and in some cases of the papillary layer of the skin." The treatment consisted of alkaline and bran baths every night, with an oxide of zinc and chalk lotion applied many times a day. The internal treatment was directed to the procuring of sleep, and the regulation of the general functions.

Prurigo.—Gay ('Archiv f. Derm. u. Syph.,' iii, 1) gives with a plate the results of his microscopic researches into the changes taking place in the skin in prurigo. He thinks that the different parts of the skin are more or less affected: the rete Malpighii, the hair-bulbs, sweat-glands, corium, and papillæ. The changes in the rete consist of increase in the cells of the deep and some of the middle layers, due probably to proliferation. Their thickness extends also to the horny layer. The vessels of the hair-sac are found dilated and enlarged. The erector muscles, the outer sheath of the root, and the papillæ, are greatly developed. The sebaceous glands are generally diminished in size, and the cells of the openings horny in character. On the other hand, the sweat-glands are dilated, their cells loosened from the membrana propria, and their blood-vessels also dilated. The same dilatation is found in the vessels of the papillæ; the cells of the corium are very marked, and are mixed with branched and wandering cells; the papillæ are enlarged. In conclusion, he agrees with Neumann, that the eruption of prurigo is due to increase in young cells and the presence of a fluid exudation in the tissue of the papillæ.

E. Wilson ('Brit. Med. Journ.,' 1871, ii, 34) records the occurrence of a pruriginous eruption in a man, æt. 57. The papules were of a kind to be felt rather than seen, and apparently due to congestion and infiltration of the vascular coat of the follicles. The number of spots never exceeded ten or twelve. On scratching them an angular or square-shaped excoriation remained, which dried up into a thin reddish scab. The patient had formerly suffered from gout.

The same writer (ibid., i, 608) publishes a case of prurigo mitis "from simple debility," in a woman, æt. 21. The papules were found chiefly in the face, a few on the fingers; the whole eruption did not exceed ten or twelve spots.

Scleroderma.—Fagge ('Path. Soc. Trans.,' xxii, 309) records the post-mortem appearances found in a woman, æt. 64, the subject of "diffused scleriasis." She had become latterly incapable of taking nourishment, because the skin of her face became so tight that she was scarcely able to move the mouth. The skin was of a yellowish colour, hard and tightly stretched over the tissues beneath. At those parts where the cuticle was

roughened and quasi-ichthyotic the epidermic scabs were found to be arranged in the form of dense conical papillæ, which retained their character in thin sections. In many regions, however, the epidermis was scarcely, if at all, thicker than natural. All the elements entering into the composition of the corium were increased in amount, and supplied by numerous perfectly constructed arterioles. This increased production of areolar tissue affected also the underlying superficial fascia in very unequal degrees; the fat-cells in it were more or less atrophied. The liver was congested, distinctly hardened and crisp, with a granular fracture.

Curran ('Edin. Journ.,' xvii, 112) publishes notes of a case of scleriasis in a soldier, æt. 29. When first seen he was suffering from a hardness and rigidity of the skin over the whole surface. The integument of the face was tightened, brawny, and shining. The skin covering the neck, chest, shoulders, arms, and legs was similarly affected; the only parts that escaped were the genitals, and, to a lesser extent, the upper eyelids. His face was utterly without expression. The disease appears to have commenced while he was in Cape Town in 1869, in a small patch on the back of his neck, and gradually extended over the arms, trunk, and abdomen. It produced throughout a feeling of tingling or numbness in the parts on which he lay in bed; there was no evidence of diminished temperature; friction and baths failed to produce perspiration. All forms of treatment were adopted without success.

Dufour ('Gaz. Méd.,' 1871, 475) reports at length the occurrence of scleroderma, with atrophy of the hands, in a married woman of 39, which was said to have commenced after an attack of ague. In this again all remedies, whether internal or external, were all but useless, though the patient was reported to be slightly better. He quotes another case somewhat similar, and concludes that there must be cases of scleroderma which are the result of atrophy of the fingers.

The two following papers are included here rather as curious records than as of practical importance:

Ullersperger ("Ein Beitrag zur ethnischen Dermatologie," 'Deut. Klin.,' 1871, 188) writes on a case exhibited at Paris by Paul, and gives the opinions of various persons upon it. It was that of a boy of fifteen, who presented a symmetrical affection of the palms of his hands and the soles of his feet. In these places the epidermis was thickened, horny, and of a yellowish colour, and was broken by fissures with a whitish-red base. There was nothing in the patient's occupation to account for this affection. It first made its appearance when the boy was ten years old, and this duration of five years and its symmetrical distribution must depend upon some internal cause. Bazin referred it to simple induration. Hardy looked upon it as ichthyosis. Diego Parada, of Madrid, calls it hipertrodermosis palmo-plantaris, or paculosis epidermica of the hands and feet; he has observed it several times, and almost always simultaneously on both sets of members. Stulli describes the affection as epidemic in Malta. Parada found it in Castile and Asturia. Ullersperger concludes that it occurs almost exclusively in the Romanic (*i. e.* French and Spanish) and Arabo-Romanic races (*i. e.* in Malta).

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In reference to this paper Lücke ("Zur ethnischen Dermatologie," ib., 217) gives a case of the same kind ("paculosis" of Gintrac) occurring in the Germanic race. A boy of nineteen had for eight years had symmetrical thickening of the epidermis on the soles of his feet and the palms of his hands. He looks upon the affection as a local one, and obtained temporary relief by removing the thickened epidermis, by applications of liquor potassæ, by tincture of iodine, and by alkaline baths.

Keloid.—Kohn ('Wien. Med. Woch.,' 1871, No. 24) writes on keloid. He shows that Alibert was the first to describe this cicatrix-like tumour of the skin; and that the name cancroid, afterwards changed to cheloid, bore no reference whatever to any resemblance to cancer, but to the likeness which the peculiar processes in keloid present to the feet of a crab. Keloid may be described generally as a flat prominence, implanted in the skin, sharply defined, raised half a line to several lines above the surrounding level, tough and elastic, and in appearance very like an hypertrophied scar; of a white glistening colour, in parts of a rosy red. It is generally painful on pressure; in many cases severe pain exists of a burning or stabbing character; and by means of this innate pain Alibert and other writers make a distinction between true and false keloid. Its most frequent seat is the skin of the upper part of the trunk, the sternum, the mamma, the lateral regions of the thorax, the back, and the neck. From his own and Hebra's cases Kohn finds that it occurs in the proportion of one to two thousand of the other diseases of the skin. The general health is not affected by the disease. Little is known as to its development and course, as the opportunity seldom occurs of following it from its earliest to its latest stages. At first small brownish-red streaks are noticed in the skin, flat, or slightly raised, resistent on pressure, and sensitive. They may grow very slowly until they reach a certain extent, and then remain stationary. After a time the keloid may become superficially destroyed, or undergo the so-called retrograde metamorphosis. Alibert and Hebra have seen spontaneous disappearance in a very few cases. As to its etiology, very small local injuries or irritations have been traced as the cause—leech-bites, blistering-plasters, and, in negroes especially, lashing with a whip. Scars in some cases may also be the origin of keloid. It is not always possible to make a certain diagnosis between the keloid and hypertrophied scars. On making vertical sections of the affected skin, thick masses of fibrous tissue are seen running parallel with the surface in the corium, normal layers of which seem to enclose it above and below. Under the microscope are seen a few nuclei and nucleated spindle-shaped cells, the latter most numerous about the processes of the keloid, where the fibres appear to make more of an open network. No vessels or glands are found in the middle of the tumour.

T. Fox ('Path. Soc. Trans.,' xxii, 313) showed four tumours ranging in size from a small fist to a walnut, which were removed from the ears of negroes in Jamaica. They are very common among them, and spring up in the site of the perforations made in the ears for earrings. On section they presented a dense, white, glistening, fibrous appear-

ance, and under the microscope the structure was that of condensed fibrous tissue.

Papilloma.—Gerhardt ('Jahrb. f. Kinderheilk.,' iv, 270) gives two cases of papilloma of the skin, somewhat resembling the case of papilloma area-elevatum published by Beigel ('Path. Soc. Trans.,' xx, 414). The cases were unmistakably connected with some central nervous disorder. The first case is that of a girl, aged 6 years, in whom papillomata were present over the whole of the right side of the breast, and the whole right arm. The left half of the nose, the left upper lip, a portion of the left cheek, and the skin behind the left ear presented papillomatous swellings. From the age of 3 the child had had incomplete epileptic attacks, which became fully developed later. In the second case, a man of 61, the growths occupied almost wholly the right half of the body, especially the axilla. He gives a minute microscopical account of the tumours, which he refers to increase in the papillæ, accompanied by melanotic pigmentation of the skin. Both cases also must be explained by the implication of certain nerves; the affection in the second case following the distribution of spinal nerves, while in the first it pointed to some such morbid condition as generally obtains in diseases of the base of the brain.

Elephantiasis.—Vanlair ('Bull. de l'Acad. de Méd. Belge,' v, 941; and 'Virch. Arch.,' lii, 292) has made researches into the histology of elephantiasis arabum. According to him the erysipelatous zone, which separates the healthy from the diseased portions, and is characteristic of the first stage of the malady, differs from ordinary erysipelas. It is limited to the papillary zone of the derma; the morbid change commences below, in the dermatic alveolar zone. There is progressive and proportionate hyperplasia of the three layers (papillary, connective-tissue, and elastic) of normal derma, with progressive atrophy of the panniculus adiposus. The epidermic hypertrophy is consecutive to that of the subjacent vascular tissue. The sweat-glands remained, while the hair-follicles and sebaceous glands had disappeared; there was interstitial hyperplasia of the nerve-fibres; in the superficial portions of the muscles the longitudinal striæ were exaggerated, while the transverse were effaced. The lymphatics and glands were unaltered. The subcutaneous veins (saphena, &c.) were varicose, with their walls hypertrophied in places. He throws no further light on the cause of the hyperplasia.

Gay ('Arch. f. Derm. u. Syph.,' iii, 489) has examined into the pathology of the sweat-glands in elephantiasis. He finds that the morbid change commences in swelling and proliferation of the epithelium, by which the openings of the ducts are obstructed and the sac swelled up. The cells which have undergone proliferation degenerate into an indistinct, homogeneous, glassy mass, in the middle of which homogeneous circular structures sometimes appear, the smallest resembling cells, the larger structureless. The glands themselves are next seen filled with the same material. The ducts are affected earlier and more severely than the glands. He gives a plate in illustration of his paper.

Hattute ('Rec. de Mém. de Méd. Milit.,' xxvi, 112) records the occurrence of elephantiasis in an Arab, æt. about 22, strong but of a

scrofulous habit. For three years his right foot had increased considerably in size (measures of his two feet are given for comparison). It was hard, of the consistence of bacon, and took no impression from the fingers. Its sensation was diminished, there was almost complete *analgesia*, but not anæsthesia. The patient demanded amputation on account of the inconvenience to which he was put by the affected limb, and the operation was performed. In addition to the histological changes generally found, the amputated foot presented a considerable number of small soft cheesy masses of different sizes, enclosed in a fine membrane and situated in the subcutaneous intermuscular tissue. Some of the cysts contained also pus and blood. He considers this "tuberculo-caseous" form of elephantiasis to be not uncommon in Algeria.

Anderson ('Lancet,' 1871, ii, 844) records eight cases of elephantiasis arabum, and three of elephantiasis græcorum. One of the patients suffering from the latter was a young Highlander who had never been out of the country; another was a boy æt. 12, who had returned from India four years before; and the third was a girl æt. 15, who had come home from Jamaica at the age of seven, about which time the disease commenced on the face. The eruption consisted for the most part of yellowish-red tubercular patches of different sizes, the sensation of which was deadened.

Molluscum.—Balmanno Squire ('Brit. Med. Journ.,' 1872, i, 45) claims to have discovered in molluscum contagiosum spores with rounded angles, which he believes to be the special vegetable parasite of the sebaceous glands, just as that found in chloasma is of the epidermis, and that of favus and tinea of the hairs.

Duckworth (ib., 98) reminds him that Hardy had already described such parasitic structures.

Ferrier (ib., ii, 682) considers the existence of a vegetable parasite to be entirely negatived by the result of his investigations. When the secretion expressed from the follicles was treated with caustic potash and examined under the microscope, it gradually became clear, from saponification of the fat, and the outlines of the epithelial cellular contents became sharp and distinct. In the secretion so treated, especially the soft central part from the large tumours, he has seen one or two unmistakeable torula-cells in the act of germination, not differing in size or form from those of penicillium. But, in addition, a great many other spore-like bodies were to be observed in the angles of the cells, apparently multiplying by germination, and even lengthening out into mycelium. They were of various sizes and forms, and had a peculiar vacuolate aspect. They might readily be mistaken for true spores; but he has come to the conclusion that they are artificial products of the action of the caustic potash on the fatty matters. In the contents of the follicles, after several days' maceration in ether, he has failed to detect any spore-like bodies, nor has he been able to produce any such appearance by treating them subsequently with caustic potash. Nor could he find any spores in the small and still firm tumours. He has attempted, with the same result, to cultivate the secretion in Pasteur's solution. He gives the case of a child, aged nine months, in whom twenty-two molluscous tumours were situated on the lips, cheek, and

neck, some pedunculated, others sessile, varying in size from a pea to a millet-seed, the largest being on the lips. Two others were situated on the buttocks; they began to appear at the aged of four months. Some had fallen off of their own accord, and had been succeeded by others. The mother had two well-marked tumours on the left breast, which as far as could be learnt, came after the appearance of those on the child's lips. She attributed the affection to contagion from a girl, who had "warts" on the face and body. The tumours speedily disappeared on being evacuated and touched with perchloride of iron.

Liveing (ib., i, 11) relates the occurrence of the affection in five children of the same family between the ages of 5 and 13. In all of them the molluscum was confined almost entirely to the face.

Duckworth ('Lancet,' 1872, i, 615) showed to the Clinical Society three patients suffering from molluscum contagiosum. The tumours began three years before in the first child of a healthy woman; she was next affected about the face and breast; and the second child presented numerous tumours shortly after birth. Lastly, the grandmother, who had slept with the eldest child, and had often nursed the baby, became affected.

Alterations in the secretion of the skin.—Wilks ('Guy's Hosp. Rep.,' 1872, xvii, 215) records the presence of hæmatidrosis in a woman, æt. 35, affected at the time with tetanus, which proved fatal later on. The supposed blood-stains yielded, on chemical examination, a little iron, but unlike the true colouring matter of blood, were quite insoluble in water and alkaline solutions; nor could any coloured solution or blood-corpuscles be procured from the stains.

Anderson ('Lancet,' 1871, ii, 707) gives a case of the same kind in a girl æt. 14 (See 'Journ. of Cutan. Med.,' i, 328). The parts implicated were the arms, the front of the chest, and legs. The hæmorrhage occurred from round erythematous patches, one on the brow; one on the chin; one on each cheek; four in a row on the front of each arm; two on each upper arm; and two on each forearm. A similar arrangement was found on the sternum and legs. One of the most marked peculiarities in the hæmorrhage was the suddenness of its invasion, generally at 11 a.m. each day. The writer considers it to have been a case of vicarious menstruation.

Berger ('Wien. Med. Woch.,' 1871, No. 7) and Wiedemeister ('Virch. Arch.,' lii, 437) give cases of ephidrosis unilateralis in men aged respectively 28 and 30. In both the sweating occurred on the left side.

Xanthelasma.—Hutchinson ('Med.-Chir. Trans.,' liv, 171) writes on xanthelasma palpebrarum with special reference to Addison's belief that it was usually associated with disease of the liver. He sums up his conclusions as follows:—It never occurs in children, but is fairly common in the middle and senile periods of life; jaundice and enlargement of the liver occurs in severe cases; the former precedes the appearance of the patches, and is of a black tint rather than yellow; however great the enlargement of the liver, it may subside, and the patient recover perfectly; attacks of liver disturbance also occur, without any jaundice, in some of the cases; the affection occurs more frequently in females than in males, in the

proportion of two to one; in all cases the xanthelasmic patches appear in the eyelids first, extending in not more than 8 per cent. to other parts; they invariably begin near the *inner* canthus, and almost invariably on the *left* side. It is probable that of the causes mentioned under which the pigmentation of the eyelids may be disturbed, disorder of the liver is the most powerful.

Diseases of the hair.—Crisp ('Path. Soc. Trans.,' xxii, 305) publishes a case of general alopecia in a healthy man. About the time at which he first noticed a small bare spot on his head, he had numbness of the skin of his left side from the armpit to the hip. Other bald patches appeared on the head, chin and cheeks, and other places, till the whole of the hair had fallen off his body by about the end of a year. He had never had syphilis. His finger-nails split into layers, and were rough, with numerous indentations and furrows, and of a brownish colour. His toe-nails were normal. No trace of fungus could be found either about the hairs or nails, on careful microscopical examination. From his own statistics Crisp concludes that nearly all subjects of this complaint are strong, young, healthy men, whilst in *porrigo decalvans* the majority of the patients are females. Of the seven cases of total alopecia he has collected, all were males; of the eight examples of the disease, confined chiefly to the head and face, six were males, and two were females.

Berger ('Virch. Arch.,' liii. 533) relates two cases of premature grey hair. The first patient had typhoid fever in 1866, followed six weeks later by paralysis of the right side of the body and of the right facial nerve, which disappeared in about ten weeks, when partial greyness of the right side of the head and face was noticed. The second patient, who had a number of white hairs under an abundance of blond hair, spoke of the white forelock as an heirloom of his family.

Pincus ('Deut. Klin.,' 1871, 3) makes a sharp distinction between alopecia on one side, and baldness and premature grey hair on the other. The first is a true disease of the hair independent of any affection of the skin. Alopecia simplex attacks healthy persons between the ages of 18 and 35, and in the course of five to fifteen years results in more or less extensive baldness of the scalp. On the other hand premature baldness affects only a portion of the latter. He holds that according to his investigations ('Berl. Klin. Woch.,' 1871, 333) the view that alopecia is the result, in middle and advanced age, of atrophy of the skin, is erroneous. He shows instead, from microscopical examination, there is really present an induration of the cellular tissue.

Parasitic affections.—Tilbury Fox ('Lancet,' 1872, i, 5) has detected the tricophyton in the air of the wards of an institution in which an outbreak of ringworm (300 cases, 120 at one time) occurred. As to treatment, besides cutting the hair, and blistering, he recommends isolation, good feeding, careful inspection, and, for the removal of the floating germs, disinfection of the wards by burning sulphur.

The same writer (ib., 1871, i, 536) describes the presence of trichophyton in a patient whose affection began as erythema marginatum, and was complicated with urticaria and ecthyma.

Vanlair ("Sur l'herpès tonsurans," 'Bull. de l'Acad. Méd. Belge,' v, 699) describes a fungus agreeing in some characters with that described by Robin as *trichophyton tonsurans*, in others with a fungus described by Malmsten.

Anderson ('Lancet,' 1871, ii, 742) asserts that tinea favosa is much more frequent in Scotland than in England; he treated 160 cases of it. "The frequency of favus in mice, coupled with the mousy odour which is one of the characteristics of the complaint, renders it not improbable that favus was originally communicated to human beings from them" (!). He met with 178 cases of ringworm, 121 of tinea versicolor, due to the presence of microsporon furfur, and 197 of tinea decalvans.

Neumann ('Wien. Med. Ztng.,' 1871, 89) describes the differences between parasitic and non-parasitic sycosis. In the former the hairs and their sheaths are affected first, while in the non-parasitic form they suffer no change till later; for instance, when the exudation into the hair-sac becomes purulent, the pus-corpuscles make their way between the sheath, and so loosen the hair. In the parasitic affection the deep subcutaneous tissue is affected, in the other only the hair-bulbs and the corium. The ordinary sycosis may remain at a standstill for months and years. The parasitic one spreads very rapidly. In two cases Neumann found, in the neighbourhood of the pustules and papules, spots and rings of herpes tonsurans, and in another case mycelia and conidia. As in all these cases he found traces of herpes tonsurans in some form or other, and as this affection preceded sycosis parasitica in 95 cases out of 100, he considers the latter as a form of the herpes affecting the hairy parts of the skin of the face. As to treatment, depilation is not necessary. He employs soft soap, succeeded by the application of Ung. Diachyli (Hebra), weak solutions of corrosive sublimate, and sulphate of copper, or an ointment containing creasote and sulphate of copper.

The same writer ('Arch. f. Derm. u. Syph.,' iii, 212) gives the results of his experiments on the culture and development of achorion.

Kohn (ib., 381) concludes that clinical symptoms prove the identity of erythema multiforme and herpes iris and circinatus. He describes the fungi which he finds, and recognises another form of the affection, which he designates as herpes tonsurans maculosus.

Monti ('Wien. Med. Woch.,' 1871, No. 37) treats itch in children with balsam of copaiba and carbolic acid. The former produces severe burning and redness of the skin, which lasts for about half an hour. The superiority of the drug consists in the rapid cessation of the itching after the first inunction; the disappearance of the eruption after three or four rubbings in; and its cheapness as compared with Peruvian balsam. The carbolic acid (4 parts to 36 of water, or to 120 of lard) is said to be better still. It is to be applied thrice a day, and the scabies ought to be got rid of in from two to four days. If eczema is present, the treatment must be persisted in for some time longer.

Weinberg ("Ueber die Ambulatorische Behandlung Scabieskranker,"

'Wien. Med. Woch.,' 1872, s. 102), in cases where the affection is slight, and the patients' skin tender, employs the usual formula:

℞ Styracis Liq., ℥j;
Olei Olivar., ℥ij.

To be rubbed in twice after a bath. He finds its effect certain. In patients with a thicker skin, he combines the styrax with soft soap and chalk:

℞ Styracis Liq.,
Florum Sulph.,
Cretæ Albæ, ana ℥iss;
Sapon. Virid.,
Axungiæ Porci, ana ℥j.

To be rubbed in for two or three evenings. This ointment has a greenish-yellow colour, a doughy consistence, and agreeable smell; one to two ounces are sufficient for one person, according to the severity of the affection. A bath is necessary only in persons of a generally dirty habit. Patients treated with the ointment state that the itching is quickly mitigated by it, so that they got a comfortable night's rest; and after the second or third inunction it disappears altogether.

Other papers on diseases of the skin are arranged as far as possible in the order of the preceding:

General.—R. M., "One Source of Skin Diseases" (soap), 'Nature,' v, 464. Mapother, "Lectures on the Treatment of Chronic Skin Diseases," 'Med. Press and Circ.,' 1872, i, 29, &c. T. Fox, "Notes on the General Principles of Cutaneous Therapeutics," 'Lancet,' 1871, i, 641. Wilson, "Lectures on Dermatology," 'Brit. Med. Journ.,' 1871, i, 163. Curran, "Notes on Cutaneous Therapeutics," 'Journ. Cutan. Med.,' iv, 35.

Erythema.—Buck, "Erythema Nodosum," 'Berl. Klin. Woch.,' 1872, 163. Siredey, "Les Rapports Pathogéniques de l'Érythème noueux avec le Rhumatisme," 'Ann. de Derm. et Syphl.,' iii, 241.

Eczema.—Tait, "Note on the Cure of Inveterate Eczema in Children by Vaccination," 'Brit. Med. Journ.,' 1872, i, 92. Wilson, "Eczema," ib., 1871, i, 163.

Herpes.—Deshayes, "Fièvre herpétique" (woman, æt. 53), 'Gaz. Hebd.,' viii, 643. Broadbent, "Herpes Frontalis giving rise to Contagious Erysipelas," 'Brit. Med. Journ.,' 1871, ii, 34. Frazer, "On Herpetic Eruptions and Allied Affections observed in Dublin during the year 1869," 'Journ. Cutan. Med.,' iv, 29. Coutagne, "De l'Herpès Généralisé Fébrile," 'Ann. de Derm. et Syph.,' iii, 162.

Pemphigus.—Picot, "Pemphigus bulleux traité par la Ouate et le Liniment Oléocalcaire" (two cases), 'Gaz. des Hôp.,' 1872, 17. Wilson, "Phlyctenous Eruption affecting the Hands, Ankles, and Buccal Mucous Membrane, recurrent thrice yearly, repeated for several years" (man, æt. 21), 'Brit. Med. Journ.,' 1871, i, 608.

Impetigo.—Devergie, "Du Cancroide, du Noli me tangere, de l'Impetigo, Rodens ulcéreux et non-ulcéreux," &c., 'Bull. Gén. de Thérap.,' lxxxi, 433.

Psoriasis.—Laycock, "Defective Cutaneous Sensibility in Cases of Psoriasis," 'Med. Times and Gaz.,' 1871, i, 275. Purdon, "On the Treatment of Psoriasis by Balsam of Copaiva," 'Dubl. Journ.,' li, 393.

Lichen.—Charpy, "De la nature du Lichen hypertrophique," 'Ann. de Derm., iv, 26.

Ichthyosis.—Clarke, "Ichthyosis linguæ," 'Lancet,' 1872, i, 648. Tait, "On the Pathology of Ichthyosis," 'Journ. Cut. Med.,' iv, 263.

Rhinoscleroma.—Scleroderma.—Geber, "Ueber das Wesen des Rhinosclerom, eine

Klinisch-histologische Studie," 'Arch. f. Derm. u. Syph.,' iv, 493. Guillemin, "Sclérème des adultes," 'Ann. de Derm. et Syph.,' iii, 521. Heller, "Ein Fall von Sklerodermie als Beitrag zur Pathologie des Lymphgefässsystems," 'Deut. Arch.,' x, 141.

Lupus.—Güterbock, "Ueber Lupöse Verkrummungen der Finger," 'Virch. Arch.,' lii, 344. B. Squire, "Living Specimen, showing the earliest stage of Lupus" (girl, æt. 24), 'Path. Soc. Trans.,' xxiii, 291.

Elephantiasis.—Bakewell, "Elephantiasis Arabum" (with engraving), 'Path. Soc. Trans.,' xxiii, 288. E. Wilson, "Elephantiasis Græcorum" (man, æt. 43), 'Brit. Med. Journ.,' 1871, ii, 34. Milton, "On the Ancient Leprosy, or Elephantiasis Græcorum," 'Journ. Cut. Med.,' iv, 81. Gordon, "The Leprosy in olden times in Glasgow," ib., 207.

Pigmentation.—Kohn, "Ueber Xanthelasma oder Xanthoma," 'Wien. Med. Woch.,' 1872, No. 8. Virchow, "Ueber Xanthelasma Multiplex (Molluscum lipomatodes)," 'Virch. Arch.,' lii, 504. Waldeyer, "Xanthelasmâ palpebrarum," ib., 318. Hilgendorf and Paulicki, "Abnorme Pigmentflecken in der Haut bei einem weiblichen Schimpanse (Simia troglodytes)," ib., 297. Geber and Simon, "Zur Anatomie des Xanthema palpebrarum," 'Arch. f. Derm. u. Syph.,' iv, 305. Kaposi, "Idiopathisches multiples Pigmentsarkom der Haut.," ib., 265. E. Wilson, "Melasma Frontis, with General Melasma in Patches, originating in Cachexia," 'Brit. Med. Journ.,' 1871, ii, 34. Frank-Smith, "On Morbid Pigmentation of the Skin," 'Journ. Cutan. Med.,' iv, 72. Purdon, "Pigmentation of the Skin," ib., 228.

Hair.—Pincus, "Der Einfluss des Haarpigments und des Markcanals auf die Färbung des Haares," 'Arch. f. Derm. u. Syph.,' iv, 1. Drysdale, "Tinea Decalvans," 'Journ. Cut. Med.,' iv, 78. Paxton, "Note on Diseased Hair," ib., 197. Purdon, "Note on Fragilitas Crinium," ib., 252. Devergie, "Note sur la Tricoptilose, Affection de Cheveux non-décrite," 'Ann. de Derm. et Syph.,' iii, 5.

Parasites.—T. Fox, "Remarks on the Treatment of Itch," 'Lancet,' 1871, ii, 672. Weigert, "Ueber Bacterien in der Pockenhaut," 'Wien. Med. Woch.,' 1871, No. 37. E. Wilson, "Phytosis Versicolor (Pityriasis Versicolor of Willan), Orbiculate, Guttate, and Pruriginous Variety, occurring in a 'Tea-liquorer'" (man, æt. 52), 'Brit. Med. Journ.,' 1871, i, 609. Bertulus, "L'école moderne et le Phthiriasis ou Maladie Pédiculaire spontanée," 'Gaz. Méd.,' 1871, 352. Spillmann, "Observation de Favus simulant un Pityriasis du Cuir Chevelu," 'Ann. de Derm. et Syph.,' iii, 347.

H.—TUMOURS.

Numerous cases of tumours will be found under the various organs; the following papers deal with their more general occurrence in the body.

Neumann ("Kenntniss der zelligen Elemente der Sarcome," 'Arch. d. Heilk.,' xii, 66) finds that the same method takes place in sarcomatous new growths as he had already convinced himself occurred in the new connective-tissue growth in pleuritic adhesions. In both the protoplasm of the cellular elements is metamorphosed into the intercellular substance of the new tissue. He thinks that this supports the old theory of Schwann, lately rehabilitated by Beale and Max Schulze, in opposition to Virchow's theory. On the analogy of osteoblast and odontoblast, he proposes to call these elements fibroblasts. In illustration he gives the following six cases:—Medullary sarcoma of the rectum with partial melanosis, fungoid sarcoma of the skin over the knee, melanotic sarcomatous warts of the great toe, ulcerated sarcoma of the cheek, sarcoma of the sheath of the tendons in the foot, and melanotic sarcoma of the bulb. He is inclined to look upon the pigmentation in melanotic tumours as a form of cell degeneration, like fatty or cheesy

transformation, rather, than with Langhans, as some result of change in the colouring matter of the blood.

Seitz ('Virch. Arch.,' lii, 114) publishes the case of a man, æt. 49, in whom were found multiple fibro-sarcomata of the nerves. Over various parts of his body were numerous large and small tumours, which after death were found to be neuromata. The largest was the size of a fist, and was situated on the left peroneal nerve; the next largest, the size of a walnut, was on the internal cutaneous nerve of the thigh. Altogether there were twenty-two. On microscopic examination the small ones were found to be made up of fibrillar connective tissue; in the larger there was a transition into round- and spindle-celled sarcoma. The nerve-fibres were not enlarged, though in some places they had undergone fatty change. The brain and its nerves, the spinal cord, the sympathetic, the cervico-brachial and lumbo-sacral plexuses, were not affected. The patient died suddenly after being admitted into hospital for strumous stenosis of the trachea.

Arnold ("Ein Beitrag zu der Lehre von dem Bau und der Entwickelung der Psammome," 'Virch. Arch.,' ib., 449) describes three tumours of the meninges allied to fibroma, which showed extensive deposit of lime-salts in the ribbon-like fibres of the tissue, in the cell-groups lying between them, and in the thickened sheaths of the arteries and capillaries. Several of the vessels contained thrombi. From his own observations Arnold is opposed to the view of Cornil and Ranvier, according to whom this deposit of lime occurs in the psammoma and in the normally or pathologically dilated vessels. The first tumour was found on the dura mater, at the base of the brain, in a woman of sixty-five, who had died of cancer of the stomach and œsophagus. It was 6 by 3·5 centimètres in size, and had caused no symptoms during life. In the second case, a woman of sixty-seven, there was, on the other hand, peculiar symptoms; here the tumour was situated on the surface of the right cerebral hemisphere, close to the longitudinal fissure; its size was 4·5 by 3 centimètres. In the third case, a woman of seventy, who had died suddenly from the bursting of a dissecting aneurism of the aorta into the pericardium, the tumour was round, with a diameter of about 2 centimètres, and was situate on the right side of the falx.

Zillner ('Virch. Arch.,' ib., liii, 140) records two cases of the occurrence of colloid cysts, one in the under lip of a boy, æt. 10, which disappeared after being punctured; the other case is that of a woman, æt. 36, who had died of typhoid, and in whom the thyroid gland and the connective tissue in its immediate neighbourhood were found to contain numerous colloid cysts.

Luschka (ib., lii, 323) also gives, with a plate, two cases in which colloid cysts were found in the larynx.

Wagner ('Arch. d. Heilk.,' xiii, 1) concludes his long account of tuberculoid lymphadenoma of the various organs with a comparison of tubercle with lymphadenoma.

Maier ("Zur Casuistik du Lymphoma," ib., 148) publishes two cases of lymphomatous tumours. In the first case, a man of twenty-eight, the diagnosis during life had been cancerous pleurisy. The right pleural sac was found filled with tumours of the size of a fist, most of them

springing from the pleura covering the lung and the diaphragm. They were cemented together by very vascular adhesions, and there were numerous large and small prominences. The upper lobe of the lung contained a tumour the size of a fist, a cavity in which, the size of a walnut, contained serous fluid of a yellowish-green colour. On section the tumours were greyish-white, and exuded a watery juice. In the lower lobe of the left lung were immense tumours, one reaching the size of a child's head. Another, the size of a nut, existed in the wall of the right ventricle, and projected into its cavity. The mediastinal glands were large and dark. A half-degenerated tumour, the size of a walnut, was found in the tongue. The spleen was enlarged, and contained two tumours. The mediastinal glands and the other abdominal organs were healthy. The microscopical characteristics—those of lympho-sarcoma—are given in full. In the second case, a man of sixty-nine, there was simple hyperplastic lymphoma of the mesenteric glands, with two tumours in the pylorus. The entire freedom of the thoracic and abdominal glands in the first case is remarkable. The writer concludes with the diagnosis between the scrofulous, leukæmic, and these new growths. In the second case there was no increase in the white blood-cells.

Roth (ib., liv, 254) records the occurrence of multiple lymphomata in a woman of fifty-three, who six months before death had been attacked with diphtheria of the fauces. Three months later she had catarrh of the bladder and of the bronchi. The autopsy showed great enlargement of all the glands in the neck, the axilla, mesentery, pelvis, groin, &c., with enlargement of the spleen. The glands were soft and marrow-like, and were of different sizes, from that of a walnut to a pigeon's egg. The whole intestinal canal was studded with numerous miliary deposits, consisting of lymph-corpuscles, situated in the submucous tissue; deposits of the same kind were found in the mucous membrane of the larynx, the pelvis of the kidneys, and the neck of the bladder. The kidneys were greatly enlarged, and contained grey miliary and larger masses, which, under the microscope, appeared as round cells in a vascular stroma. In the brain were numerous microscopical deposits of round cells in the interlobular connective tissue. There was no increase in the number of the white blood-cells.

Birch-Hirschfeld ("Zur Cylindromafrage," 'Arch. d. Heilk.,' xii, 167) describes a peculiar tumour removed from the abdominal cavity of a man, æt. 59, who had died of phthisis. It was the size of a fist, and in connection with the base of the vermiform appendix, and sent three cylindrical processes with knobbed terminations into the cavity of the pelvis. The tumour and its microscopical characters are described at length; and from the whole he concludes that the anastomosing network of which it was composed was the relic of obliterated vessels, and all the other growths in it products of changes in their adventitia; and that the hyaline degeneration which the growth had undergone was caused by the deposit of (probably emigrated) lymph-corpuscles, which had partly been transformed into spindle cells. The starting-point of the tumour must have been the vessels of the serous coat of the vermiform appendix and neighbouring parts. He refers

to the published cases of cylindromatous tumours, and calls the one described by himself angioma mucosum proliferum.

De Morgan, "On the Origin of Cancer," 'Lancet,' 1871, ii, 6. Arnott, "Notes on the Pathology of Malignant New-growths: Carcinoma," 'Med. Times and Gaz., 1871, i, 566. Silver, "Cancer beginning in the Inguinal Glands and extending upwards along the Lymphatics into the Chest" (man, æt. 23), ib., ii, 769. Coats, "The Structure of the Myxoma and Sarcoma, with Illustrative Specimens," 'Glasgow Med. Journ.,' iv, 35. Kaschewarowa-Rudnewa, "Myoma Striocellulare seu Rhabdomyoma Myxomatodes Vaginæ," 'Virch. Arch.,' liv, 65. Lang, "Ein Beitrag zur Kenntniss der sogenannten Dermoidcysten," ib., liii, 128. Armauer-Hansen, "Beiträge zur normalen und pathologischen Anatomie der Lymphdrüsen," ib., lvi, 280. Perls, "Beiträge zur Geschwulstlehre," ib., 437. Acker, "Zur Pathogenese der Geschwulstmetastasen," 'Deut. Arch.,' xi, 173. Neumann, "Ueber Sarcome mit endothelialen Zellen nebst Bemerkungen über die Stellung der Sarcome zu den Carcinomen," 'Arch. d. Heilk.,' xiii, 305.

I.—CLIMATE AND HEALTH-RESORTS.

Holden ("Ostracism for Consumption," 'Amer. Journ. Med. Sci.,' lxi, 107) asserts that the efficacy of a long sea voyage is gradually becoming more evident. The testimony even of those who have simply crossed the Atlantic on their way to Italy, Madeira, or Syria, will be almost universally found in its favour. Within a week after losing sight of land the cough frequently subsides or changes in character, dyspnœa is relieved, the appetite returns, and with it a sense of new vigour and hope of recovery. The voyage to Cape Horn, Sydney, and thence to San Francisco by sea, &c., offers all the combined benefits to be looked for. As to American resorts, he recommends Florida, Aiken, South Carolina, and Minnesota. At the same time the object of his paper is to "protest against the growing recklessness in sending patients who fail to improve out of sight."

Maclaren ('Med.-Chir. Rev.,' xlvii, 193) writes on a long sea voyage in phthisis pulmonalis. He gives short notes of his own and nine other cases, and relates some useful facts as to the voyage to Australia. From the time of leaving England the temperature steadily rises until the vessel is close on the line, generally in a month or five weeks; it then gradually falls, until the most southerly point in the passage is gained, which may, perhaps, be in another month; during the remainder of the time it rises slightly until Australia is reached. He sketches the good hygienic conditions in which the patient is placed—pure uncontaminated air, pure water, absence of drains, good food, with generally a large proportion of fat. "But a sea voyage is a rough remedy, and it cannot be expected that it will be beneficial in every case."

Rattray ('Proc. Roy. Soc.,' xviii, 529; xix, 295) describes some of the more important physiological changes induced in the human economy by change of climate, as from temperate to tropical, and the reverse. Tropical climate causes loss of weight and depression of both mental and bodily energy. With hard work and diet of salt meat the loss is greatly increased.

Sésary ('De la température de la ville d'Alger au point de vue des Maladies Chroniques de la Poitrine;' Alger, 1872) shows that the study of maximum temperatures is of more importance from a medical

point of view than that of mean temperatures. From the 1st of May to the 1st of November, or thereabouts, the climate of Algiers is hot, and utterly unsuitable for phthisical patients, who would find benefit from the temperate season between the beginning of November and the end of April. (This publication is probably referred to in an article on "Algeria as a Health Resort" in the 'Lancet,' 1872, i, 342. —*Rep.*)

Pulling, "The Pine Forests of Georgia as a Resort for Invalids," 'New York Med. Journ.,' xiv, 232. Mattocks, 'Minnesota as a Home for Invalids,' Philadelphia, 1871. Reimer, "Climatische Wintercurorte," 'Deut. Klin.,' 1871, 422. Lantoin, "Notes concernant la Topographie médicale de différentes Localités du littoral de l'Océan Pacifique, recueillies pendant la campagne de la Frégate *l'Astrée* (1868-1871)," 'Arch. de Méd. Nav.,' xvii, 161. Bourel-Roncière, "Le Station Navale du Brésil et de La Plata," ib., 23. Macpherson, "Notes of Visits to Foreign Baths," ib., 460. Taylor, "The Climate of Pau," ib., 1871, ii, 535. Simons, "Climate in its relations to the Production, Progress, Amelioration and Cure of Consumption," 'Amer. Journ. Med. Sci.,' lxiii, 82. Morehead, "Remarks on the Health-Resorts of Europe," 'Edin. Journ.,' xvii, 1080. Grabham, 'The Climate and Resources of Madeira,' London, 1871. Cannes and the Isles of Lerins" (good general description), 'Sat. Rev.,' Sept. 2, 1871, 304. Brown, 'Wintering at Mentone, on the Riviera,' London, 1872, pp. 176 (light reading).

List of Errata in last Report on Practical Medicine.

Page 50, line 10 from top, *for* "lanula" *read* "lunula."
„ 52, „ 1 „ *after* "suchung" *dele* full stop.
„ 59, „ 7 „ *read* ring."
„ 66, Seidel's cases should probably have been included under typhoid fever.
„ 73, line 3 from bottom, *for* "considerahle" *read* "considerable."
„ 88, „ 8 „ *for* "sudariparous" *read* "sudoriparous."
„ 92, „ 3 from top, *after* "Gaz." *read* "1869."
„ 102, „ 19 „ *for* "i" *read* "l."
„ 103, „ 7 „ *after* "Hysterie" *dele* full stop.
„ 119, „ 17 „ *for* "Acetus" *read* "Acutus."
„ 119, „ 4 from bottom, *for* "retinæ" *read* "Retinæ."
„ 132, „ 14 from top, *for* "Thus" *read* "In the same way."
„ 139, „ 13 „ *for* "pas" *read* "par."
„ 147, „ 24 „ *for* "Ambrée'sche" *read* "Aubrée'sche."
„ 185, „ 15 from bottom, *for* "Entozoares" *read* "Entozoaires."
„ 187, „ 18 from top, *for* "latter" *read* "delirium."
„ 187, „ 17 from bottom, *for* "these" *read* "there."
"Ib." is in many places printed for "Id."

The following errata in the present Report have been overlooked:

Page 34, line 24 from bottom, *for* "appearances" *read* "appearance."
„ 40, „ 21 from top, *for* "abaissment" *read* "abaissement."
„ 41, „ 19 „ *for* "Burke" *read* "Barker."
„ 44, „ 2 from bottom, *for* "Selteuer" *read* "seltener."
„ 47, last line, *after* "employment" *read* "in."
„ 50, line 14 from bottom, *for* "Dr." *read* "De."
„ 70, „ 7 from top, *after* "1872" *read* "pp."
„ 73, „ 10 „ *after* "Beitrag" *dele* full stop.
„ 79, „ 11 from bottom, *for* "Des Parasiten" *read* "Die Parasiten."

REPORT ON SURGERY.

BY

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Anæsthetics.—The number of deaths which have occurred, lately, from chloroform, the reported immunity of ether from such accidents, the visit of Dr. Joy Jeffries to the Ophthalmological Congress held in London, and his practical demonstrations of the manner in which ether is given in America, have contributed to excite, anew, the discussion as to the relative merits of the various anæsthetics, and to lead to a trial of ether on a large scale in this country. All the journals have contained articles on the subject, and papers have been contributed by many administrators.

In the 'Lancet' for Nov. 16 and Dec. 7, 1872, is a report on anæsthetics and anæsthesia. In the former number is an account of a case, published in the 'New York Medical Record,' of a *death from the administration of ether.* This case is also noted in the other journals.

Ether and chloroform.—Mr. W. Haward gives the following conclusions as to the effects of chloroform in fatal cases:—(1) That in the majority of fatal cases the mode of death is by failure of the heart's action. (2) That this failure is generally sudden. The chief danger from chloroform is a sudden arrest of the heart's action, and this danger does not appertain to ether. It has been shown, by Dr. Snow, that it is impossible to paralyse the heart by ether inhalation. Ether, probably, even stimulates the heart. It has the advantage of being antagonistic to the effect of the shock of an operation. Mr. Haward thinks that there is less liability to sickness, after the administration of ether, than after chloroform. The chief objection to ether is the greater quantity that is required, but this, to some extent, may be overcome. The most convenient form of apparatus is a cone of felt, covered with oiled silk or macintosh, into the upper part of which is fitted a piece of sponge, which can be changed occasionally for a similar piece kept in a basin of warm water. A shallow gutter running round the inside of the cone prevents the ether from reaching the patient's face. An aperture, the size of which can be regulated by the finger, admits more or less air as may be required. The principles to be attended to, in the administration of ether, are—(1) To scatter the ether on to a surface which allows its evaporation without much absorption. (2) When the

temperature of this surface is so much reduced that the ether is too slowly evaporated, to change it for a warm one. (3) To give the vapour freely, at first, so as to bring the patient under its influence as quickly as possible, by which the tendency to struggling is lessened. The two chief inconveniences, which Mr. Haward has found, are, the unpleasantly noisy excitement sometimes manifested when the patient is recovering from its influence, and the rapid diffusion of the vapour about the room, which is to some disagreeable. The easy inflammability of the vapour must also be borne in mind. A table of thirteen cases of deaths from chloroform is given, and also a table of cases in which ether was administered, ninety-seven in number. In only one, was there after-sickness, and, in that case, the patient only vomited once, an hour after the operation. ('Med.-Chir. Trans.,' lv, 5.)

Anæsthetics, by Dr. Jones ('Brit. Med. Journ.,' Nov. 23 and 30, 1872).

Chloroform and its administration. Dr. Vivian Poore ('Lancet,' Oct. 12, 26, Nov. 16, Dec. 14, 1872) contributes clinical remarks on chloroform and its administration.

Chloroform accidents, by J. T. Clover ('Brit. Med. Journ.,' July 8, 1871).

A clinical lecture on *Death from chloroform*, by Mr. Erichsen, is given in Brit. Med. Journ.,' June 8, 1872.

The administration of ether, by John Couper ('Brit. Med. Journ.,' Nov. 30, 1872).

The administration of ether, with a figure of an apparatus, by Dr. Morgan ('Brit. Med. Journ.,' Nov. 23, 1872).

Ether as an anæsthetic, by Dr. Morgan ('Brit. Med. Journ.,' Oct. 12, 1872).

The administration of ether, by G. E. Norton ('Brit. Med. Journ.,' Dec. 7, 1872). He figures an apparatus.

Ether v. *Chloroform*, article in 'Brit. Med. Journ.,' Nov. 2, &c., 1872.

Nitrous oxide still holds its place as a safe anæsthetic, adapted, at any rate, for short operations; chiefly the extraction of teeth. A case is just now reported from Exeter, in which death followed the administration of nitrous oxide, but the pulse and respiration were noticed for some minutes after serious alarm was excited. There was no post-mortem. The case will probably remain doubtful as to the exact way in which death occurred. ('Brit. Med. Journal,' &c., Feb. 1, 1873.)

Antiseptic surgery.—Mr. Lister's address, before the Brit. Med. Assoc., enters, fully, into the question of antiseptic surgery. It has been published in all the medical journals, and, therefore, must be accessible to most readers. Full abstracts referring to previous papers are given in preceding 'Bien. Retrosp.' We need, now, only refer to the carbolic spray and the gauze dressing; the chief novelties, we believe, which have been introduced and which have been adopted in many quarters. Numerous cases of successful antiseptic treatment have been noted in the various journals. *Antiseptic gauze*. — Mr. Lister describes it as being a loose cotton fabric, the fibres of which are impregnated with carbolic acid, securely lodged in insoluble resin, which holds the carbolic acid with remarkable tenacity, while, at the same time, a little paraffin is added to prevent the adhesiveness, which the mixture of carbolic acid and resin would otherwise possess. The fabric is porous. A piece of oiled silk protective is applied next the skin, then a considerable quantity of the gauze is taken and folded into about eight layers and placed over the protective. In order to compel the dis-

charge to pass through the whole of the gauze before it can reach the surface, some impermeable surface must be interposed between the gauze and the external air. A cheap and light form of macintosh, termed "hat-lining" by the india-rubber dealers, answers well. A piece of this is cut and placed beneath the layer that is intended to be outward. The discharge, then, cannot come straight through. The whole is retained by a bandage carefully applied. The dressings are changed according to the same principles as formerly noted. *Carbolic spray.*—This is applied by means of one (or more) of Richardson's spray producers. The spray is kept playing over the part, operated on, or being dressed. The solution of carbolic acid need only be of the strength of one part in two hundred of water. Mr. Lister discusses the treatment of abscess; ligature of arteries; application of catgut stitches to tendinous openings in umbilical hernia, &c.; ununited fracture of neck of thigh bone; removal of loose cartilages from knee-joint; senile gangrene; ulcers, &c. ('Brit. Med. Journ.,' Aug. 26, 1871, and other journals).

Some surgeons wash the wound out with a strong solution of chloride of zinc (Mr. De Morgan's plan, noticed in previous 'Bien. Retrosp.'), and then dress antiseptically, instead of using the spray the whole time.

The antiseptic catgut ligature is spoken of, favorably, in many quarters. The principles involved in its employment have been noticed in previous 'Bien. Retrosp.' Cases in which secondary hæmorrhage has occurred, in spite of it, are recorded, now and then; some are alluded to further on. Mr. Lister does not recommend the catgut ligature unless the surgeon can make sure of antiseptic dressing afterwards.

A case illustrating the *present aspect of the antiseptic system of treatment in surgery* is narrated at length by Mr. Lister. In the treatment of *an old injury about the elbow* he found it necessary to divide the ulna and snip off the head of the radius to allow of the reduction of a dislocation which existed. He did this, with confidence, under the influence of the antiseptic dressing. ('Brit. Med. Journ.,' Jan. 14, 1871, 30.)

Antiseptic surgery, a graduation thesis, by Dr. James Cumming, is given in the May number of the 'Ed. Med. Journ.,' 1872, 985. Statistical tables of cases treated by Mr. Lister are appended.

Dressings of dry lint, &c.—In the 'Edin. Med. Journ.,' February, 1871, are narrated various cases of amputation of the thigh, excision of the knee, removal of the breast, &c., under the care of Dr. Gillespie, in which rapid recovery followed, the only dressing used being dry lint, at first, and then water dressing. For the removal of tumours, in five instances, the average length of incision was seven inches; the average time of complete recovery was ten days. See also Mr. Callender's cases further on.

Treatment of wounds by alkaline applications.—Mr. Monson ('Brit. Med. Journ., Oct. 5, 1872).

The "open treatment" of operation wounds.—Dr. Krönlein, in an essay on this subject, gives the results of observations made on 6000 cases in the surgical clinic at Zürich during the years 1860-1872. He

draws a comparison between the results observed from 1860 to 1867, when, under Billroth, the open treatment was but rarely followed, and those met with in 1868-1872, when, under Rose, this plan was followed almost without exception. There were no alterations of any importance in the building or other arrangements of the hospital during the time.

Krönlein first gives a history of the subject. In 1856, Vezin, of Osnaburgh, described, in the 'Deutsche Klinik,' the results of thirty amputations which he and Bartscher had performed in the course of twenty-one years, and of which only three had proved fatal. In 1859, Burow, of Königsberg, stated that he had had only three deaths in 62 cases of amputation. Vezin and Bartscher applied no kind of means for uniting the wounds; while Burow used sutures half an hour after the operation, tying them, however, in such a way that they could be readily loosened in case of distension. In all other respects the wounds were left without dressing. In 1866, Burow had increased the number of his cases to 94, still with only three deaths. In 1867, Passavant stated that he had followed the method in cases of resection; it was also adopted by Billroth and Esmarch, while Stromeyer, Pirogoff, and Lücke, spoke with more reserve of its value. Rose's plan agrees with that of Bartscher and Vezin; he does not attempt to obtain healing by the first intention, but regards careful arrest of hæmorrhage, and as perfect rest as possible, as conditions necessary for success.

In the statistical portion of his essay Krönlein gives the comparative results obtained in the larger amputations, extirpation of the breast, and the conservative treatment of complicated fractures. During the years 1860—1867 there were 140 amputations, of which 72, or 51·4 per cent., were fatal; from 1867—1871 there were 85, with a mortality of ·17, or ·20 per cent. Neither the place of the amputation nor its cause, the age or sex of the patient, or the mode of operating, produced any essential differences, and Krönlein thence concludes that the improved results can only be attributed to the after-treatment. In six cases healing took place without any fever. Of extirpation of the breast there were, in the first period, 34 cases, with a mortality of 32·2 per cent.; and, in the second, 22 cases, with a mortality of 13·6 per cent. In the first period, 86 cases of complicated fracture were healed conservatively, of which 25·5 per cent. died: in the second, 65 cases, with a mortality of 21·5 per cent. Hence Krönlein concludes that, in the Zürich hospital at least, the open method of treatment has proved superior to all others.

Some interesting statistics are given regarding the occurrence of accidental surgical disease. In the first period, the proportion of deaths, from pyæmia and septicæmia, to the total number of deaths was as 22·6 to 40·3; in the second, it was as 6·9 to 19·7. On the other hand, the number of cases of erysipelas increased; in the first period, there were 39 cases among 260 patients, or 11·5 per cent.; while, in the second, there were 26 cases among 172 patients, or 15·1 per cent. This increase of erysipelas Krönlein attributes to the changes of temperature, which occur in a hospital freely ventilated by natural means, as is that at Zürich; and he suggests that it might be obviated by well-regulated artificial ventilation.

Acupressure.—Prof. Pirrie writes on this subject in the 'Lancet,' ii, 1871. Having, since his former communication, nearly doubled his experience, and feeling fully convinced as to the efficacy of acupressure, he is anxious to see it more generally adopted. Three modes only are required; they are now named *Circumclusion, Torsoclusion*, and *Retroclusion*. In the first method, a pin and a loop of inelastic wire are required, in the other two, only a pin. *Circumclusion* consists in entering a pin in the tissues, a line or two to one side of the artery, pushing it behind and causing its point to emerge a little beyond the vessel; passing a loop of inelastic iron wire over the point of the pin, bringing the wire over the track of the artery and behind the stem of the pin, drawing it sufficiently tight to close the vessel, which is proved by the arrest of the hæmorrhage, and fixing it by a single twist around the pin. The slight amount of direct and continuous pressure required to produce perfect arrest of circulation through an artery is remarkable. Of all methods of acupressure this is the best; it is perfectly reliable, it is most generally applicable, it may be performed in an amazingly short time, and, like the other methods, in ordinary circumstances without the aid of an assistant. When the artery is to be relieved from pressure the head of the pin must be gently twirled, and having been thus loosened, may be pulled out with the greatest ease without causing any pain; after which, the loops, being liberated, can be readily withdrawn.

Torsoclusion is the "Aberdeen" method, or the method by the twist. It consists of two stages. A pin is thrust into the tissues close to the mouth of a vessel, pushed along in its direction for a short distance; then, secondly, a quarter turn is given to the pin, so as to place its emerged extremity, above, and at right angles to the artery; it is pressed well down against the small portion of tissue between the instrument and the artery, and the point is sent, for some distance, into the tissues beyond the artery, for the purpose of securing the pin in position and of maintaining the twist. This is the simplest, the easiest, and the quickest method, and is perfectly efficient. There can be but little molecular injury or straining of tissues, and by the gentlest twirl and traction the pin can be easily withdrawn, with extremely little, if any, discomfort to the patient.

Retroclusion, so named in consequence of the pin passing ultimately behind the artery, is a convenient mode of securing vessels of small, or very moderate size. In the first step, the pin is entered in the muscular tissue, a little to one side of the artery, held almost flat upon the wound, caused to emerge and passed in front, across, and a little beyond the track of the artery. Only a few muscular fibres are raised upon the pin, and it is caused to emerge before being sent across the track of the artery. In the second step, the head of the pin is made to describe the greater part of a semicircle, so as to be placed nearly flat on the opposite side of the wound; its point is then sent behind the artery, in the contrary direction to that in which it passed in the first movement, and pressed on until it is fixed in the tissues beyond the vessel. Figures are given.

Experience has shown that in ordinary circumstances where acupres-

sure has been skilfully performed, vessels of comparatively small size, such as the facial, temporal, radial, ulnar, mammary, and spermatic, may be safely freed from pressure in *eight hours; and larger* arteries, as the brachial, axillary and femoral, in *twenty-four*. In one case a boy whose thigh had been amputated removed the pin in four hours, from the femoral, without any hæmorrhage resulting. In another case the axillary was relieved in fifteen hours without ill result. Of two thousand arteries, acupressed, hæmorrhage only occurred twice on the removal of pins, and the vessels were immediately secured again. The result of acupressure is adhesion of the internal surfaces, with the formation of an internal coagulum more or less adherent to the artery. Since March, 1864, Dr. Pirrie has practised acupressure in all kinds of operations without failing to arrest hæmorrhage. Cases are mentioned in which rapid union followed in large wounds. Dr. Pirrie has not seen a case of septic poisoning since adopting acupressure.

Mr. Clement Lucas describes a new plan. He uses an ordinary acupressure needle, with a ring at the end opposite the point, and a loop of wire. The needle, at about an inch from its point, is twisted round on itself, so as to form another ring. The loop of wire is first passed through the ring, at the end of the needle, and then through the second ring, so that the end of the loop will pass over the point of the needle. The loop is then bent up out of the way, and the needle and wire may be so kept ready for use. When employed, the pin is passed under the artery, as far as the second ring, the loop of wire is bent down, over the point and then withdrawn, along the needle, till the artery is compressed as tightly as desirable, when the distal ends of the wire are secured round the needle. To remove it the wire is untwisted and the pin pulled on. If bleeding occur, the wire is again tightened, if not, the needle is removed altogether. The plan is easy of adoption, and safe, and is the only one which allows of being reapplied, if bleeding occurs, at once, without opening the stump. Figures are given. ('Lancet,' Sept. 2, 1871, 320.)

Cases illustrating the process of occlusion in arteries after acupressure, with its relation to the treatment of surgical hæmorrhage and as compared with ligature and torsion, are given, by J. J. Gant ('Clin. Soc. Trans.,' iii, 95), with illustrations.

Torsion of arteries and dressing of wounds.—Mr. Callender's experience has been in favour of torsion. His first dressing has been, first, the leaving the surfaces to nature, after carefully arresting bleeding, and after placing them in apposition; secondly, thorough covering up of the wound with lint or with cotton-wool. (Clin. Lecture, 'Brit. Med. Journ.,' Jan. 20, 1872.)

Surgical treatment of aneurism.—Mr. Holmes enters, in detail, into the surgical treatment of aneurism, in his lectures at the College of Surgeons, in June, 1872, published in full, in the 'Lancet' and in the form of abstracts, in the other medical journals. Space will not allow of our following him in his critical examination of the cases published. The main propositions are stated succinctly by himself: 1. That aneurisms, of whatever form, and however near the heart they may be, ought not to be regarded as incurable, but should be made the objects of

definite, methodical treatment, internal or external. 2. That there is definite proof, from pathological anatomy and from surgical experience, of the curative influence of Brasdor's operation in innominate aneurism, and of its beneficial effects in some cases of aortic aneurism. 3. That arteries may be successfully tied and obliterated without their continuity being interrupted; and that this modification of the ligature, whilst affording much security against secondary hæmorrhage, and thus much diminishing the danger of the operation in general, may very probably, in future, enable surgeons to deal successfully with cases in which it may be necessary to tie the first part of the subclavian (whether on the distal or proximal side of an aneurism) or the innominate artery. 4. That galvano-puncture may be used with, at any rate, temporary benefit in thoracic aneurism; that its use is not so dangerous as to render further trials of it inexpedient; and that there is good hope that the method may be so far perfected, as to make it a safe and regular plan for the treatment of thoracic, subclavian, and other forms of aneurism. 5. That many cases, such as those in which ligature of the artery, near to the heart, has been resorted to, for the cure of subclavian and subclavio-axillary aneurism, may be made amenable to improved methods of pressure. 6. That aneurismal tumours situated even as high as the lower part of the abdominal aorta, those of the mesenteric and other branches of the aorta and of the iliac arteries, may be treated with success by rapid coagulation of blood under pressure; but that this method is a dangerous one, and should not be used until internal treatment has failed. 7. That there are cases of abdominal aneurism in which Mr. Syme's suggestion of reviving the old operation is worthy of further trial.

Mr. Bryant has published clinical lectures on the treatment of aneurism. He narrates a case of ligature of the femoral artery for femoro-popliteal aneurism, in which death from pyæmia resulted; a case of aneurism in the calf of the leg cured by pressure and flexion; a case of popliteal aneurism treated by digital pressure, in which a cure resulted in forty hours; a case of femoral aneurism treated by compression, followed by ligature and pyæmia; a case of aneurism of left carotid, ligature, and death from sloughing of sac thirty-six days after operation; a case of ileo-femoral aneurism, ligature of external iliac, and recovery; a case of aneurism of the innominate, ligature of the subclavian, and recovery. He discusses the plans in use for flexion, compression, ligature, and the employment of Spier's artery constrictor. ('Med. Times and Gazette,' June 29, July 13, and July 27, 1872.)

Electrolysis and galvano-puncture.—(See further on.)

Injection of ergotin in aneurism.—Dr. Dutoit, of Bern, describes in the 'Archiv für Klin. Chir.,' xii, the case of a man, æt. 40, who fell with his arms stretched out. A swelling subsequently appeared in the left clavicular region; it increased, and three years later was recognised to be a subclavian aneurism. When Dr. Dutoit saw him in October, 1869, the aneurism was as large as an ostrich's egg; it pulsated strongly, and filled the supraclavicular fossa; the clavicle was eroded and pushed outwards, and dislocated from its sternal attachment. The integu-

ments, in the neighbourhood, were œdematous, and the veins were in a varicose state. As ligature or compression appeared to be impossible, it was determined to try the plan of injecting ergotin subcutaneously, as recommended by Langenbeck. The solution, used, consisted of a drachm of Bonjean's ergotin, and three drachms, each, of glycerine and alcohol. Of this, a portion, containing half a grain of ergotin gradually increased to three grains, was injected in the neighbourhood of the swelling, at first every second day, afterwards every third day. Altogether fifteen injections were made between October 25th and December 1st. A diminution of the tumour was first noticed after the fourth injection, and after this continued steadily. The injections produced sharp pain, lasting for about two hours, but not followed by abscess. At the points of injection, however, there was left some induration of the skin and subcutaneous tissue, which compressed the veins and, probably, had a similar effect on the aneurism. In the beginning of December, the supraclavicular fossa was free from the tumour; digital compression was now applied during three hours, in the morning and three, in the afternoon, for six days; under this treatment the tumour totally disappeared. As a precautionary measure, ten injections containing, each, three grains of ergotin were administered at long intervals, and compression, with a bandage and pad, was kept up for some time. The aneurism, when the patient was last seen (July, 1870), was quite cured, forming a hardened mass attached to the sternum and clavicle.

Muscular spasm relieved by compression of arteries.—M. Broca having found, in his own person, that compression of the femoral artery relieved cramp of the leg, conceived the idea of applying the same treatment to constant, violent, muscular contraction in a case of fractured leg which came under his care. The spasms were so violent and painful that the limb could not be put up in splints. On applying pressure to the femoral artery the contractions at once ceased; and on their recurring, at a later time, when the dressings were being readjusted, compression was again applied successfully. ('Journal de Méd. et Chir. Prat.,' March, 1871.)

Aneurism of the common carotid artery; ligature.—A man, æt. 39, came under the care of Mr. James Lane on account of a large, pulsating tumour on the right side of the neck, of nine months' duration. The artery was ligatured about two inches above the sterno-clavicular joint with a silk ligature. Increase of temperature was noted, on the same side, for the first two days. The temperature then sank to the normal, and, finally, below that of the opposite side. The man presented himself for examination eleven weeks after the operation, and scarcely any trace of the tumour could be discovered. ('Lancet,' Oct. 14, 1871, 541.)

Mr. Gamgee narrates a case in which he ligatured the left common carotid artery, below the omo-hyoid, for aneurism. The patient died six days later. It was found that he had a cancer of the rectum which had ulcerated into the peritoneum and set up peritonitis. The condition of the wound and of the aneurism had been very satisfactory. ('Lancet,' June 3, 1871, 741.)

Aneurism of the innominate—apparent cure.—A case in which aneurism of the innominate was diagnosed, and in which a cure apparently followed, is recorded by Mr. Morgan. Ice was applied and sulphate of iron and digitalis (three drops of the tincture twice daily) given internally. The treatment was continued about a month. The man resumed his occupation, having been quite unable to do so before. The man remained, apparently, quite cured at the time of the last note, at the end of eighteen months. ('Dub. Quart. Journ.,' Feb. 1871, 144.)

A case of *axillo-subclavian aneurism* was treated by digital pressure on the cardiac side. Sloughing of the skin and deep tissues occurred around the sac. Ultimately a partial cure resulted. The patient was a man, æt. 45, under the care of Mr. Gay. ('Lancet,' Feb. 10, 1872, 185.)

Aneurism of the ascending portion and arch of the aorta, treated by ligature of the left carotid artery.—A man, æt. 48, a farm labourer, came under the care of Dr. Cockle for an aneurism of the arch of the aorta. The symptoms are given in detail. The left carotid artery was ligatured above the omo-hyoid by Mr. Heath. The wound healed quickly. The symptoms, of tumour pressing forward the sterno-clavicular articulation and bulging into the neck, of impulse, of inequality of the pupils, &c., diminished or disappeared. At the end of four months he had continued to improve, and walked fourteen miles in one day. He was shown at the College of Surgeons, and his case was commented on by Mr. Holmes. (See 'Lancet,' July, 1872; 'Clin. Soc. Trans.,' v, 183.)

Subclavian aneurism; temporary compression of innominate artery by an elastic compressor specially contrived; ulceration of vessel; antiseptic ligature; secondary hæmorrhage on fifth and sixth days; death.—Mr. Bickersteth communicated the case to the Med.-Chir. Soc., Nov. 26, 1872. (Abstracts 'Med. Journ.')

Ligature of the subclavian artery.—Sir W. Fergusson ligatured the subclavian artery for axillary aneurism ('Med. Times and Gaz.,' Feb. 25, 1871, and 'Brit Med. Journ.,' March 4, 1871). He found the omo-hyoid a good guide. The patient died. A second case is also reported ('Med. Times and Gaz.,' April 22, 1871, 453). The *aneurism was traumatic.* A healthy young man was wounded, five or six weeks before, with the prongs of a pitchfork, one of which entered at the anterior margin of the deltoid muscle, and probably damaged the axillary artery. The wound healed, but soon afterwards a pulsating swelling was noticed in the armpit. When admitted, there was a tumour, the size of an orange, high in the axilla. Sir W. Fergusson remarked that he would have been justified, as it was a case of wounded vessel, in cutting down and tying the artery above and below; but there are exceptions to the best surgical rules. The wound would be extensive; the vein might also be affected; there might be great hæmorrhage; compression of the subclavian is a doubtful safeguard. An objection to the proximal ligature might be found in the "collateral circulation." This objection, however, though abundantly proved as regards the brachial artery, has never yet been established as regards the axillary.

Mr. Gay tied the *right subclavian artery*, in the second part of its course, for an aneurism involving the subclavian and axillary arteries. The patient died, on the nineteenth day, of bronchitis. The condition of the parts at the seat of the operation was quite satisfactory. ('Lancet,' May 6, 1871, 611; also 'Path. Trans.,' xxii, 111.)

Ligature of the carotid and subclavian arteries.—In a case of aneurism *at the root of the neck*, Mr. James Lane ligatured the carotid and subclavian arteries. The patient, a woman, æt. 40, recovered. Some temporary improvement followed; but ultimately the aneurism steadily increased in size, the sternum and clavicle becoming eroded. ('Lancet,' Jan. 13, 1782, 45.)

Aneurism of the arch of the aorta simulating innominate aneurism; attempted distal operation.—Mr. Heath intended to ligature the subclavian and carotid arteries, but, in attempting the former, found the sac (of what proved to be an aortic aneurism) in the way and desisted. Remarks are made on the bearing of the case on distal ligature. The patient was in a dangerous state, and might have died from bursting of the sac at any time. Probably the operation hastened his death. There would have been no difficulty in ligaturing the *common carotid artery*, and it is an interesting speculation as to the influence this, alone, would have on the result. The *left subclavian* was obstructed. ('Path. Trans.,' xxii, 95.)

Traumatic axillary aneurism; ligature of the subclavian; recovery.—Dr. C. C. F. Gay records the case of a man, æt. 26, who had been wounded, six years previously, by a pistol-ball, in the front of the left shoulder. Soon afterwards a tumour was noticed in the armpit. The ball was never removed. A tumour, as large as a child's head, projected in front of the axilla on the chest. It seemed like a large abscess about to burst. No bruit could be detected, nor any pulsation. The arm was paralysed, and there was no radial pulse. A needle, thrust in, gave exit to a few drops of blood. A trocar gave exit to a little blood. An incision was made down to a blue surface, and then pressure with the handle of the scalpel burst the sac, and blood spurted out profusely. A free opening was then made into the sac and compression made with the finger of an assistant, while the third part of the subclavian was tied. On the seventh day there was secondary hæmorrhage, which stopped with pressure. The paralysis of the arm was disappearing, but the radial pulse had not returned when last seen. ('Am. Journ. Med. Sciences,' Oct. 1871, 392.)

Traumatic aneurism of the vertebral artery.—Dr. Kocher, of Bern, relates, in Langenbeck's 'Archiv für Klin. Chirurg.' (xii, 867), the case of a man named Abraham S—, æt. 48, who, three weeks before his admission into hospital, on October 27, 1868, had received three stabs in the nape of the neck and one over the scapula. The latter wound and two of the others soon healed; but the fourth had remained open, and from it there had been daily hæmorrhage, often profuse. This was restrained by plugs soaked in styptic solutions, over which was laid a compress of charpie moistened with solution of perchloride of iron, the whole being covered by a bandage. On removing these dressings there was seen, about an inch to the left of the spine, at the level of

the fifth and sixth cervical vertebræ, a roundish wound about two thirds of an inch in diameter. There was also observed through the opening a swelling, which was distinctly seen and felt to pulsate, though feebly. On removing the coagulum which lay in the wound, some dark blood escaped; and on the removal of the finger after its introduction into the wound, a rather violent hæmorrhage of bright red blood followed. Digital pressure not arresting the bleeding, the wound was laid open to the extent of about three inches, and a large quantity of coagulum was removed by the finger. There was thus found to be a cavity of the size of a small apple, at the bottom of which were felt the posterior surface of the left articulating processes, and, more distinctly, the transverse processes of the vertebræ. A transverse incision was now made, an inch and a half, in the anterior and half an inch, in the posterior, direction; and the blood was seen to come from a point between the transverse processes of two vertebræ, apparently the fifth and sixth. Arterial blood escaped from both the central and the peripheral portions of the artery; and the bleeding was arrested by pressure against the transverse processes, either from above or from below. As a ligature could not be applied, a plug of charpie of the size of a pea, soaked in solution of perchloride of iron, was introduced between the transverse processes, and left there, as soon as it had been ascertained that the bleeding had ceased. The external wound, having been closed by sutures, was covered with charpie, dipped in carbolised glycerine, Lister's carbolic acid paste was applied, and the dressing was retained in place by a bandage. The head was kept fixed by a stiff collar. The plug in the deep part of the wound was removed on the fourth day after the operation, partly by means of a stream of water, partly by forceps; no bleeding followed. With the exception of a slight attack of erysipelas, which extended from the spine along the right side of the chest and right arm, the patient made steady progress towards recovery, and was discharged, cured, a little more than five weeks after the operation.

Kocher remarks that this is the twenty-first recorded case of traumatic aneurism of the vertebral artery, sixteen having been collected by Barbieri of Milan, and four having been referred to, by Pilz, in an essay on ligature of the carotid artery, published in the ninth volume of the 'Archiv.' Of the twenty cases, eleven were the result of stabs. In ten cases the result was fatal, before any pulsating swelling appeared. When an aneurism was formed it was generally about three weeks after the injury, and fourteen days after the healing of the wound. In Kocher's case, however, and in one recorded by Möbus, violent bleeding occurred on the seventeenth day, and a pulsating tumour was noticed on the removal of the bandages.

The presence of a wound in the vertebral artery, or of a traumatic aneurism, has been ascertained by *post-mortem* examination in seventeen cases. In a fatal case recorded by Fraeys, in which no necropsy was made, there was a pulsating tumour one inch below the mastoid process, the pulsation in which was arrested by pressure, but not in the least degree by ligature of the carotid. Kocher says, that his and Möbus's cases, of traumatic, vertebral aneurism, are the only two that

have terminated in recovery. In Möbus's case there was a tumour below the occipital bone on the right side. It might have arisen from either the occipital or the vertebral artery; but pulsation was not arrested by pressure on the occipital artery, nor was the tumour diminished by compression of the carotid. In Kocher's case it was, at first, uncertain whether the vertebral or the deep cervical artery was injured; but the hæmorrhage, on the removal of the dressing, and the result of introducing the finger as far as the transverse processes of the vertebræ, soon rendered the diagnosis clear.

In a number of cases, traumatic aneurism of the vertebral artery has been supposed to be seated in one of the branches of the carotid. Kocher adopts Barbieri's explanation of this. It is that, when the carotid is compressed against the so-called carotid tubercle, on the transverse process of the sixth cervical vertebra, the vertebral artery is also compressed, at its point of entry into the foramen of the transverse process. The deception is not removed by compressing the carotid at a higher point, for the vertebral may pass up in front of the transverse processes. If it be desired to compress the vertebral alone, the plan recommended by Barbieri must be followed, of applying deep pressure, from without inwards, at the inner edge of the sterno-mastoid muscle. Kocher says that compression of the vertebral with the carotid may be avoided by applying pressure to the latter, laterally, through the sterno-mastoid muscle. In nine of the recorded cases the wound was at, or above, the second cervical vertebra; in two, it is stated, merely, to have been at the upper part of the neck, and, in six, it was below the second vertebra. In four of the latter cases it was in the neighbourhood of the external carotid and its branches. Barbieri believes that the seat and direction of the wound and the situation of the swelling will aid the diagnosis, but Kocher dissents from this opinion.

With regard to treatment, Kocher, following Barbieri, says that in three cases there is no record. In one case, death was the result of hæmorrhage; in another of compression of the medulla oblongata by the effused blood. Another patient died of meningitis, and another of septicæmia following suppuration of the areolar tissue of the neck. One patient died of hæmorrhage after the removal of a bullet. In eleven cases, the carotid artery was tied, through error in diagnosis, and this operation probably rendered the evil greater, by increasing the pressure of the blood in the vertebral artery; indeed, in two of the cases thus operated on, the patient died of violent hæmorrhage from the seat of injury, and, in three, from bursting of the aneurism. In five cases ligature of the carotid was followed by paralysis and death. Lücke, in a case in which the aneurism increased rapidly after ligature of the carotid, injected chloride of iron into the sac, and also applied plugs saturated with the perchloride; the patient, however, died with symptoms of paralysis. Maissonneuve, in a case of gunshot wound, tied both the vertebral and the inferior thyroid arteries, and removed the bullet. The hæmorrhage was arrested, but death occurred from infiltration of pus into the spinal canal, and consequent inflammation.

In Möbus's case the treatment for the first seventeen days consisted in the application of bandages and cold lotions. Hæmorrhage then

appearing, astringent solutions, and, later, iced cataplasms were used. Two months after the receipt of the injury the patient was seized with severe pain, during which the aneurism diminished, and at last disappeared, the patient recovering.

Ligature of the vertebral artery, Kocher observes, is impossible, except in a portion, about six centimètres long, between its origin and its entrance into the transverse foramen of the sixth cervical vertebra; and, in most of the cases, the only remedy, in cases of wound of the vessel, is the introduction of a plug saturated with some disinfecting fluid and pressed deeply. If this fail, two resources are left—the application of styptics and the Hunterian ligature of the artery. The latter operation has been twice, only, performed on the living subject—once by Maissonneuve, in the case already referred to, and once by Smyth, of New Orleans, in a case of regurgitant hæmorrhage after ligature of the innominate for subclavian aneurism. Distal ligature of the vertebral artery, between the occipital bone and the atlas, as has been suggested by Dietrich, would be both difficult in performance and uncertain in result.

In applying styptics it is doubtful whether they should be introduced deeply. In one case the nerves lying behind the artery were iujured, and in another, attended with lesion of the bones, dangerous inflammation of the spinal meninges took place. If simple plugging fail, the wound must be laid well open, so that the surgeon can see the bottom of it; and the styptic must be applied immediately and exclusively to the bleeding orifices of the vessel. The best styptic is the solution of perchloride of iron. It is most important that the movements of the head should be restrained by means of a stiff cravat.

When an aneurism has formed, digital compression of the artery on the transverse process of the sixth cervical vertebra, or injection of ergotin, in the neighbourhood of the tumour, may be tried. Attempts to produce coagulation by electricity, or by injecting coagulating fluids into the sac, are inefficient and dangerous. The Hunterian operation is uncertain in result, on account of the collateral circulation. The treatment in which Kocher has most confidence is the early laying open of the sac and plugging, and, when possible, the direct application of solution ofperchloride of iron to the bleeding ends of the vessel.

Abdominal aneurism cured by compression of the aorta.—Dr. Moxon and Mr. Durham record a case in which an abdominal aneurism was cured by compression of the aorta. This is the only case recorded precisely similar to the one narrated by Dr. Murray. The aneurism could be distinctly felt over a space extending from rather less than an inch below the cartilages of the false ribs to the level of the umbilicus, and from the right of the median line to about midway between the median line and the left border of the abdomen, or rather further. The patient was kept in bed and perfectly at rest for eleven days. Very sparing diet only was allowed, and pills of acetate of lead and opium were administered every six hours with the view of diminishing the desire for food. The tourniquet was screwed down *very slowly* until the pulsation was completely arrested, the patient being under the influence of chloroform. The lower extremities were enveloped in cotton wool and hot

water bottles placed in the bed. The pressure was absolutely maintained for ten hours and a half. It then seemed desirable to discontinue the treatment. The aneurism no longer pulsated. It was manifestly smaller and harder than before the application of the pressure, In the course of a short time pulsation was again recognised; it was very much feebler than before. A little nourishment and a full dose of opium were given. After this, the patient slept. The next day the aneurism was smaller, much harder, and less compressible than it had been. It still pulsated in a marked degree. The general symptoms were remarkably slight considering the severity of the treatment. The right foot was colder than the other. Tincture of iron and of digitalis were given in ten minim doses. No bad symptom of any kind arose; but the pulsation of the femorals which had returned to some slight extent soon ceased altogether. The condition of the aneurism varied. At the end of a fortnight it was not only much smaller, harder and feebler in pulsation, but such pulsation as remained could be arrested with great ease, by digital pressure on the aorta. After rather more than a month the pulsation ceased altogether to be perceptible. The paper concludes with remarks on such cases as the above. Sphygmographic tracings of the pulse are given. ('Med.-Chir. Trans.,' lv, 213.)

Distal compression of the aorta.—Mr. Bryant records a case in which he employed distal compression of the aorta for abdominal aneurism situated high up. The patient was a man æt. 30. A tourniquet was applied for twelve hours under chloroform, the tumour pulsating all the time. Pressure was discontinued for twelve hours and was then applied for four hours. The man then became very ill and died eleven hours, later, thirty-nine hours after the first application. At the *post-mortem* it was found that intestine had been damaged by pressure and had set up peritonitis, and that the aneurism was consolidated. A drawing of its condition is given. Mr. Bryant says, "The interest of this case is very great." "In a clinical point of view, it illustrates the fact that peritonitis, as a consequence of contusion of the intestine or peritoneum, is a danger which must be taken into account in the use of the abdominal tourniquet." "It demonstrates the pathological fact that pressure upon the *efferent* artery of an aneurism or distal pressure, for twelve or sixteen hours, is as capable of producing the formation of a solid coagulum in a sacculated aneurism, even in a large artery, as pressure upon the *afferent* vessel, or proximal pressure. The case suggests inquiry into the value of compression by other means than that of a tourniquet. I would also suggest that some instrumental means should be looked for by which the inner and middle coats of an artery may be divided and allowed to recurve, as in torsion, without destroying the external coat, acting on the knowledge that an artery after a contusion may become occluded, and the fact Moore has given us that a blow upon the common iliac artery may so detach its inner coats as to allow them to recurve and thus close the vessel."

Mr. Bryant speaks favorably of Dr. Spiers' artery constrictor so far as he has tried it on the dead subject.

"The distal treatment of an aneurism is well worthy of renewed

attention." "Up to the present time the distal treatment of aneurism has been, with rare exceptions, judged mainly upon the results of the application of the permanent ligature." "I have a strong feeling that the distal treatment of aneurism by means of pressure in one of its forms, is likely to be followed by as much success as has already attended the treatment by pressure when applied to the proximal side of an aneurismal tumour." ('Med.-Chir. Trans.,' lv, 225.)

The case of *rapid cure of aneurism by pressure*, under the care of Dr. William Murray, is published by him in a small volume with an account of the post-mortem, and remarks on the mode of treatment generally.

Ligature of the common iliac artery for hæmorrhage from an abscess due to sacro-iliac disease.—Mr. Morrant Baker narrates a case of unusual character, in which he ligatured the common iliac artery. The patient, a youth of 17, a gardener, a month previously, whilst digging, felt a pain in the right hip. On examination the whole of the right gluteal region was found occupied by a tense, elastic swelling, giving on pressure a distinct sense of fluctuation, acutely tender, and at one point, near the posterior inferior spine of the ilium, apparently protruding, abscess-like. It was opened, and a small stream of apparently arterial blood escaped, but there were no jets. The swelling did not diminish. The hæmorrhage was easily stopped. The swelling was so like an abscess that a colleague, who was consulted, thought an artery had been wounded over it, and that a deeper incision had better be made. Chloroform was given, and an exploration made. The finger entered a large cavity between the iliac bone and the glutei muscles. The iliac and psoas regions were full and tense, and on examination through the rectum a swelling was found in the right ilio-rectal fossa. It seemed that blood had filled the gluteal, iliac and ischio-rectal regions. On enlarging the gluteal wound a steady stream of arterial blood welled up through the great sciatic foramen. This was firmly plugged. It was decided to ligature the common iliac artery. This was done by a curved incision near the anterior spine of the ilium without much difficulty. On removing the plug from the sciatic foramen, some bleeding still occurred. This was easily stopped again. The gluteal wound became offensive, and the gluteal region and upper part of the thigh passed into a state of gangrene. The leg and foot, however, remained unaffected. The patient died forty hours after the operation. The sacro-iliac joint was found open and gaped on pressure, and the neighbouring bone was diseased. The remains of a large abscess were found involving the branches of the internal iliac artery. No trace of aneurism could be found. No affection of the peritoneum or of any abdominal or thoracic viscera was found to require notice. "It is, therefore, to be presumed that disease of the sacro-iliac joint was the beginning of mischief, which, by extension in the pelvis, led ultimately to ulceration through the coats of one of the main branches of the internal iliac artery. ('St. Barth. Hosp. Rep.,' viii, 120.)

Ligature of the external iliac artery; femoral aneurism.—Cases under the care of Mr. Lund, and of Dr. Lowe, are noted in the 'Lancet,' Aug. 5, 1871 (191, 192): the patients recovered. Mr. Terry records a successful case ('Lancet,' Feb. 3, 1872). Mr. H. Smith performed

this operation for femoral aneurism ('Med. Times and Gaz.,' Feb. 25, 1871, 218). A successful case under the care of Mr. Jessop is noted in the 'Lancet,' Oct. 12, 1872. A successful case for inguinal aneurism is noted under the care of Dr. Bernard ('Lancet,' June 22, 1872, 853). Gangrene of the toes followed. A catgut ligature was used.

Femoro-popliteal aneurism treated by temporary deligation of the femoral artery, &c.; bullet in head of tibia.—Mr. Stokes records the case of a man, æt. 36, admitted Aug. 17, 1870, into the Richmond Hospital, suffering from a large pulsating tumour, occupying the lower extremity of the thigh and popliteal space. He had been a soldier, and in 1860 received a gunshot wound near the knee. The ball entered a little external to the tuberosity of the tibia, and was never extracted. Four years later he left the service, and up to the time of his admission was employed as an agricultural labourer. Three weeks previously, when going home after a day's work, he felt something "jump in his ham," and then he first observed the tumour. Pressure was applied to the femoral, but it could not be borne. On Sept. 3, Mr. Stokes exposed the femoral artery, placed a silver wire round the vessel, and passed Porter's clamp down on the two free ends of the wire. These were tightly fixed to the ring of the clamp.—(See preceding 'Retrospect.') This effectually arrested all circulation through the aneurism. Fifty hours afterwards the ligature was removed, and to Mr. Stokes' disappointment there was a return of pulsation in the aneurism. The tumour then commenced to enlarge rapidly. Digital compression was carefully tried for twenty-four hours. The thigh was then amputated by the circular method. Pyæmia set in, and the patient gradually sank. On examining the tumour the aneurism was found to be a diffused one. The artery (popliteal) was ruptured on its anterior aspect. A large mass of coagulated blood was found in the aneurism. The knee-joint contained about an ounce of amber-coloured serum, otherwise the articulation was quite healthy. The posterior surface of the femur at its lower third was denuded of periosteum and slightly eroded. A section of the head of the tibia revealed a bullet which had been encysted for ten years. "An examination of the portion of the artery where the temporary ligature had been applied showed that no damage had been sustained by the artery. This is a matter of considerable importance, as it shows conclusively that the wire compressor can be applied to a large artery so as to completely occlude it for so long a period as fifty hours, without doing any injury to it whatever. Mr. Holmes, in his admirable lectures at the College of Surgeons on the surgical treatment of aneurism, in speaking of the case where I applied the temporary ligature to the abdominal aorta, observes that the time (twelve hours) during which it was applied 'hardly allows a judgment as to the action of the compressor.' In the foregoing case, however, the instrument was applied for fifty hours without there being any damage whatever sustained by the vessel." ('Dubl. Journ. Med. Sci.,' Dec. 1872, 434.)

Femoral aneurism; compression; cure.—Under the care of Mr. Jessop. ('Lancet,' Nov. 2, 1872.)

Fusiform femoral aneurism cured by compression.—Mr. Spence nar-

rates the case of a man, æt. 32, in whom compression of the femoral cured a fusiform aneurism. He remarks on the nature of the aneurism, and the reasons for adopting the particular mode of cure. Watson's "pressure apparatus" was used. Fusiform aneurism in the lower extremity is rare. Mr. Spence has only met with one other case, an aneurism of the popliteal, which he cured by ligature of the femoral. In the present case the oblong aneurism was in that part of the femoral immediately above the origin of the great anastomotic artery, and, as the contents of the dilated portion were quite fluid, such a direct, retrograde feeder would have speedily refilled the vessel and acted as a disturbing element in preventing the formation of a coagulum. Mr. Spence had determined, if compression failed, to cut down on the artery in Hunter's canal. The exact time which elapsed before pulsation ceased is not noted, but it was the evening of the first day. Mr. Spence lays stress on complete compression. ('Med. Times and Gaz.,' June 1, 1872.)

Death from secondary hæmorrhage after the use of a carbolised catgut ligature.—Mr. Holden records a case in which he ligatured the femoral with a catgut ligature, and in which secondary hæmorrhage occurred on the ninth day, and proved fatal almost immediately. At the post-mortem, a large collection of pus was found burrowing in the thigh. At the point where the vessel was tied, there was a small, jagged perforation of the arterial coats. No trace of the ligature could be found. ('St. Barth. Hosp. Rep.,' viii, 189.)

Popliteal aneurism; ligature of the femoral artery.—Two cases, under the care of Mr. Savory, are recorded in the 'Lancet,' Aug. 5, 1871, 191. The patients recovered.

A case of popliteal aneurism, bursting into the knee-joint, and supposed to be synovitis of the joint, is narrated in the 'Lancet,' June 24, 1871, 851, by Mr. Jamieson, of Shanghai.

Mr. Lister mentions (Address, 'Brit. Med. Journ.,' Aug. 26, 2871, two cases of diffused, popliteal aneurism treated by ligature of the femoral with catgut, antiseptically. Both patients recovered. In one case, the ligature was applied in "a forbidden region, from the vicinity of the profunda or other considerable branches."

Mr. Cooper Forster and Mr. Barwell relate cases of cure by compression. ('Clin. Soc. Trans.,' v, 105 and 110.)

Mr. Holmes records a case which was cured by voluntary flexion of the leg in about thirty-six hours. ('Brit. Med. Journ.,' April 6, 1872.)

Mr. Stokes figures an instrument for arterial compression (*Presse artère*), devised by Mr. O'Reilly, and gives a narrative of a case in which he used it. The pressure was kept up, night and day, for four days, without causing any inconvenience or pain. ('Dub. Journ. of Med. Sci.,' Dec. 1872, 432.)

Two cases are recorded by Mr. Holden, one of which was cured by pressure and the other by genuflexion. After thirty hours' continuous pressure (digital), aided by a bag of shot placed over the fingers, which enabled each person to press for two hours, pulsation quite ceased. Mr. Holden thinks it ought then to have been continued for a while,

for the pulsation again returned at the end of twenty-four hours, and they had to press for some time longer. In the second case simple flexion was tried. On the seventh day very little pulsation remained, and the pressure of a tourniquet was added over the femoral. At the end of another week the pressure was gradually removed. In six weeks from the beginning of the treatment the patient was allowed to walk about. ('St. Barth. Hosp. Rep.,' viii, 139.)

A case of aneurism of both popliteal arteries treated successfully by compression of the femorals is noted by Dr. Rendle. ('St. Barth. Hosp. Rep.,' viii, 107.)

Aneurism, false.—Mr. Spence narrates some interesting cases of false aneurism. A man came under his care for the results of a stab in the upper and inner part of the calf of the left leg, inflicted accidentally six weeks previously. Hæmorrhage had occurred repeatedly. Pressure on the femoral did not check venous hæmorrhage. Mr. Spence felt convinced that the posterior tibial artery and vein were wounded. He made an incision, about eight inches long, along the inner aspect of the calf, dividing the gastrocnemius and soleus muscles and exposed the vessels. It was seen that the posterior tibial artery was injured close to the bifurcation of the popliteal, and also one of the venæ comites. A ligature was applied above and below the wound in each vessel, and another was applied to the anterior tibial, just below the bifurcation of the popliteal. The ligatures were left hanging out, and wet lint applied to wound. The patient recovered, and resumed work as a postman in a country district. Mr. Spence remarks on the points of interest in the case. The patient was in a very unfavorable condition, the limb greatly swollen. The operation practically amounted to ligaturing the lower part of the popliteal as well as a large vein, yet recovery followed. He also details a case of *false aneurism of the radial.* The hæmorrhage at the time of the wound was controlled by a pad, &c., and the wound healed; nevertheless an aneurism formed subsequently, which had every appearance of being an acute abscess. ('Med. Times and Gaz.,' June 29, 1872.)

Ligature of artery above elbow, for aneurism below the bend of the elbow.—In this case there was a high division. The aneurism had resulted from a sprain, and involved only the radial, so this was tied by Mr. Hulke *above* the elbow. Compression and flexion had failed. ('Med. Times and Gaz.,' April 1, 1871, 363.)

Tourniquet.—Mr. Bulley has devised a double tourniquet for compressing the femoral, alternately, in one of two positions, without shifting the instrument. Two pads with screws are fixed to a bar, connected by rings at each end to a long pad, which is placed behind the limb. The relative position of the screws in front can be altered. ('Med. Times and Gaz.,' Jan. 27, 1872, 95.)

Congenital lymphatic varix (see previous 'Bien. Ret.')—Dr. Paterson describes a case. The child was a female. The whole right lower extremity was much enlarged, and looked much like a leg severely affected with varices in the adult. The child could move the limb. A quantity of fluid transuded through the skin continuously. About the fifth day large blebs appeared. Death took place on the ninth day after birth. The

varicosities proved to be enlarged lymphatic vessels filled to distension with a milky serous fluid. ('Edin. Med. Journ.,' May, 1871, 1012.)

Removal of nævoid growths with the écraseur.—Mr. J. F. West has repeatedly employed the écraseur for the removal of nævoid growths, with great success. He narrates cases in the 'Lancet,' March 4, 1871, 302.

Treatment of nævus by subcutaneous rupture of vessels.—Dr. Mezger describes, in the 'Arch. für Klin. Chir.,' xiii, the case of a child, three months old, who had a large nævus on the left ala nasi. On prolonged expiration the tumour increased in lividity and size. Dr. Mezger compressed, with his finger, the vessels proceeding from the tumour, so as to distend its capillaries with blood. He then rapidly squeezed the nævus, thus rupturing the vessels in the interior. This operation was repeated several times, with the result of producing extravasation of blood and slight inflammation, followed, ultimately, by complete disappearance of the nævus.

Treatment of varix by subcutaneous injection of ergotin.—Dr. Paul Vogt, in the 'Berliner Klin. Wochenschr.,' March 4, 1872, speaks of subcutaneous injection of ergotin as an effectual and safe remedy in varix. In a case which he described he used a solution of 2 grammes of aqueous extract of ergot in alcohol and glycerine (each 7½ grammes), injecting a syringeful in the immediate neighbourhood of the varix. One of the enlargements disappeared after the first injection, and another a few days after a second, made two days subsequently to the first. At the points where the injections were made, there remained some hard, circumscribed infiltration, which was not attended with much pain, and disappeared gradually. In six weeks, during which the patient (an old man) went about as usual, no trace of enlargement of the veins could be detected. The treatment was afterwards adopted with excellent results in several patients in the surgical clinic at Greifswald. Vogt has also used ergotin injection successfully in varicocele, hæmorrhoids, and certain forms of nævus.

Death rate after amputation.—During the three years which have elapsed since Mr. Callender published his last note on this subject, Sir James Paget and he have performed amputations in twenty-five cases, consecutively, without one fatal result. There was one primary amputation of the thigh and nine for disease; eleven of the leg for disease; two others (primary) upper extremity, and two for disease. "If amputation statistics are to be relied upon, no stronger evidence could be given of the healthy condition of the hospital wards during the three years to which the above figures relate." ('St. Barth. Hosp. Rep.,' viii, 179.)

Recurrent hæmorrhage after amputation.—A case of recurrent hæmorrhage after amputation of the leg, treated by ligature of the femoral with success, is narrated by Dr. McDougall. Ligature of the bleeding artery in the leg-stump had succeeded for a time only. The vessels were much diseased. ('Edin. Med. Journ.,' June, 1872, 1086.)

Amputation at the hip-joint.—Mr. Lister records a case of successful, primary amputation at the hip-joint. Antiseptic treatment was adopted. The patient was a boy five years of age. ('Edin. Med. Journ.,' Aug. 1871, 149.)

A successful case, for cancerous disease, is recorded by Dr. Bramwell. The patient died, however, five months later. Reference is made to other cases. ('Edin. Med. Journ.,' Nov. 1872.)

A successful case, for osteo-sarcoma recurring in the femur, is recorded by Mr. Croft. ('Path. Trans.,' xxiii, 203.)

Reamputation at the hip.—George A. Otis records in detail a successful case ('Am. Journ. Med. Sciences,' Jan. 1871, 141). He alludes to the comparative safety of exarticulating the femur, for diseased conditions succeeding a previous amputation in the continuity of the thigh. He enumerates twenty-one cases, nine belonging to military and twelve to civil surgery. This distinction is valueless, as the causes for operation are strictly analogous. In twelve cases, the operation was done for "chronic osteo-myelitis," in six, for recurrence of tumours, &c., and, in three, it was compulsory on account of hæmorrhage or gangrene. Fourteen, of the twenty-one (66 per cent.), were successful. We may conclude, therefore, that in incurable disorders of thigh-stumps, resulting either from injury or disease, disarticulation at the hip is the proper remedy. By using a *gutta-percha artificial stump*, nine or ten inches in length, firmly strapped to the pelvis by a broad chamois-lined canvas band, an ordinary artificial limb for thigh-stumps can be used.

Supra-condyloid amputation of the thigh.—Mr. Stokes writes further on this subject. He has found the operation a successful one, and quotes cases, noted by others, since his communication to the Med.-Chir. Soc. (see last 'Retrospect.') ('Dub. Journ. Med. Sci.,' Dec. 1872, 426.)

Amputation through the femoral condyles.—Mr. Richardson gives two cases (successful). In one he removed the patella, in the other he left it, having removed the cartilage. He divides the rectus. In the latter case the patella united well. Two other cases are mentioned (successful), under the care of Mr. Morgan. ('Dub. Quart. Journ.,' 1871, 277.)

Amputation at the knee-joint.—In a clinical lecture on a case of fibro-plastic tumour of the leg, in which he performed amputation at the knee-joint, Mr. Erichsen makes some remarks on this operation. He prefers a long anterior flap, slightly rounded at the edges, and leaves the patella. If the latter is removed the flap is liable to be too thin to live, and if it is left, there is a liability to suppuration in the large synovial pouch under the quadriceps extensor. He leaves the cartilaginous surfaces of the femur and patella. ('Lancet,' Sept. 30, 1871, 460.)

Dr. Staples records two cases in which he performed amputation through the knee-joint. One patient was a man, æt. 41. The operation was performed for inflammation of the leg. A semilunar incision was made in front, an inch or an inch and a half below the tubercle of the tibia. The flap was dissected up far enough to reach the joint, which was then cut through, the limb being flexed, and a short posterior flap made. The patella filled the space between the condyles well. The progress of the case was good. The inner condyle was exposed for a time, but soon became covered. In eight weeks he could bear his whole weight on the stump. In five months he went to work in a boot store, and had to stand "constantly upon his feet" all day. The other patient was a boy, twelve years old, suffering from necrosis of tibia, &c. A similar operation was performed, and a "button of cartilage was

taken from the internal condyle." In three months he could bear his entire weight on the stump. He was a strumous lad. The patella kept in good position. ('Amer. Journ. Med. Sciences,' Jan. 1872, 62.)

Senile gangrene.—Mr. Liston recommends *amputation* under antiseptic dressings. ('Brit. Med. Journ.,' Aug. 26, 1871.)

Gangrene of the leg; amputation; recovery.—Mr. Morgan records the case of an old man whose foot became gangrenous, and whose leg he amputated as high up as possible. The patient recovered. The bones of the foot were found disorganized. A figure of the condition is given, ('Dub. Quart. Journ.,' Feb. 1871, 138.)

Spontaneous gangrene of both feet, in a boy, arising from disease of the heart; double amputation; recovery from operations; death from cardiac and pulmonary conditions.—Mr. Gant. ('Clin. Soc. Trans.,' v, 176.)

Amputations.—Favorable results, in country practice, are recorded by Dr. Benny. ('Edin. Med. Journ.,' Nov. 1872.)

Amputation of the foot.—Mr. Stokes writes on Prof. Smith's modification of Hey's operation on the foot. The great advantage of it is that the ball of the great toe and the base of the fifth metatarsal bone are preserved. The operation is performed by making an oblique incision across the four lesser metatarsal bones, commencing about three quarters of an inch in front of the base of the fifth metatarsal bone, and in a direction towards the metatarso-phalangeal articulation of the great toe. The incision should be made down to the bones, and another incision should then be made at the centre of the first one, but at right angles to it, upwards and inwards, for about an inch or an inch and a quarter. The flaps at each side of this incision should then be dissected off the bones, and these, thus freely exposed, should then be obliquely divided, close to their proximate articulations, with a small saw or fine forceps. The flap should be taken altogether from the sole of the foot. The operation appears to be best adapted for cases of caries of the phalanges and distal extremities of the metatarsal bones, for severe injuries of the phalanges with extensive laceration of the soft tissues, and epithelial ulcerations not unfrequently occurring in this situation. Mr. Stokes records the case of a woman, æt. 58, suffering from epithelioma of the three lesser toes of the right foot. A lithograph of the state of the stump after recovery, and a woodcut of the cast of the stump of the patient, on whom Prof. Smith first operated, are given ('Dub. Journ. Med. Sci,' Dec. 1872, 428.)

Ankle-joint amputations.—Dr. Smith concludes that ankle-joint amputations are only half as fatal as leg amputations, and the stumps are better adapted both for unassisted locomotion and for the use of artificial supports. In reference to Pirogoff's and Syme's amputations, Dr. Smith is of opinion that the former yields the better stump for unassisted progression, and the latter for the adaptation of mechanical aids. ("Surgical Memoirs of the War of the Rebellion," published for the U. S. Sanitary Commission; reviewed in 'Am. Journ. Med. Sci.,' Oct. 1871, 451.)

Resection of the shoulder- and elbow-joints of the same arm.—Mr. MacCormac records the case of a French soldier who was disabled at the battle of Sedan by a shell explosion. The fragments severely lacerated the bones and soft parts of his right arm, in the region of the

shoulder- and elbow-joints. For twelve days he did not receive any special attention. When Mr. MacCormac first saw the patient, he found a large, suppurating wound in the deltoid region, and another on the posterior aspect of the elbow-joint. The soft parts were extensively injured and the bones much comminuted. It almost seemed as if amputation at the shoulder-joint were indispensable. It was, nevertheless, determined, if practicable, to save the limb. The man bore the first part of the operation without an anæsthetic, but he was induced to take chloroform for the second stage of it. The original wounds were enlarged. The shoulder-joint was first attacked. Four inches of the upper extremity of the humerus were removed, the bone being sawn through at the limit of the fractured portion. The elbow-joint was then examined. Only the external condyle of the humerus was implicated, and only the thinnest possible slice was removed by the saw. The ulna was extensively fractured, the olecranon process pulverised, and the shaft split throughout its upper third. The fragments were removed subperiosteally, and the irregular extremity of the shaft cut through at the junction of the middle and upper third. A further portion of the shaft, split off for an inch farther down the posterior surface, was also removed, so that the divided extremity of the ulna only presented about two thirds of the section of the bone. As the radius was not implicated beyond its articulating head, this, only, was removed. The bones of the forearm were, therefore, divided at very different levels; but the tubercle of the radius was preserved with the muscular attachments belonging to it, and the preserved periosteum was trusted to regenerate, in part, the portions of ulna removed. To have sawn off both bones at the lower level would most certainly have precluded all hope of a useful result. The after treatment consisted in supporting the injured arm on pillows, and providing for the free outflow of matter. "Neither in this nor in any other case of resection of the elbow- or of the shoulder-joints did I employ splints, and from choice I always employed a single straight incision in the soft parts." The patient did well for a week, then symptoms threatening pyæmia set in; an abscess, however, formed, and was opened, and he then steadily recovered. A photograph of his condition, eighteen months after the operation, is given:—"The elbow-joint is thoroughly healed, and the ulna so far reproduced that there is scarcely any appreciable deformity or loss of shape in the joint. He can flex and extend it, and also pronate and supinate the forearm. The power of the hand is being rapidly and completely regained. As the shoulder-joint is not yet healed, its condition is not so satisfactory; but by means of the pectoralis and latissimus dorsi muscles he moves the joint freely backward and forward. He cannot raise the arm very high from the side, but this is no uncommon result after excision of this articulation, and in this particular instance the greater portion of the deltoid muscle was destroyed by the shell fragment causing the original wound. I can entertain no doubt that, as soon as the necrosed piece of humerus is removed, the sinus in the region of the shoulder will close, and the usefulness and power of the limb become greatly increased. Meanwhile, I submit that the man's present condition is extremely satisfactory; and, while it affords an ample justification of the operation,

as performed, it, also, warrants me in placing this case upon record, as one of successful resection for gunshot injury of the elbow- and shoulder-joints of the same arm. ('Med.-Chir. Trans.,' lv, 207.)

Excision of the shoulder-joint.—Two cases are recorded by Mr. Ewens. Both patients were females; one æt. 18, the other 32. Both recovered well, though much out of health at the time of the operation. The disease had existed for long. In the first case, an oval flap was made, in the second, a vertical incision at the posterior border of the deltoid with a superior transverse cut. ('Lancet,' Sept. 16, 1871, 390.)

Mr. Gant, after alluding to the usual conditions requiring excision of the shoulder-joint, notes that the amount of bone to be removed is rarely extensive, the disease being usually limited to the head of the humerus, while the glenoid cavity is comparatively seldom affected, and, even then, may usually be left untouched or only scraped. The resulting state of the joint would seem to be that the limb can never be elevated above the horizontal line; while in many cases it hangs down without any power whatever in the deltoid, at a greater or less distance from the scapula. The movements of flexion, extension, and adduction are usually free; abduction can often be effected to the extent of raising the arm considerably from the side, and there is, generally, sufficient power in the forearm to carry heavy weights, and perform many of the ordinary domestic tasks. Mr. Gant mentions a case, under his own care, in which excision was successfully performed, but the patient died subsequently of internal disease. He also narrates the case of a young lady, æt. 17, at the time the note was made, whose right shoulder-joint inflamed acutely after exposure to cold (?) six years before. Suppuration followed, and a copious discharge occurred from several sinuses for two months, when the joint was excised by Mr. Lane. A vertical incision, down the inner border of the deltoid, with a short transverse cut superiorly, was made. Two inches and a half of the humerus were removed, and the glenoid cavity, in a deeply carious state, was freely gouged. The patient made an uninterrupted recovery. The arm, at the end of the six years, was four inches shorter than its fellow, but she could move it freely backwards and forwards, without, however, the power to raise it horizontally unless aided by the left hand. The motions of the forearm were perfect, so that she could work readily, write, or play the piano. (Ibid., Sept. 2, 1871, 313.)

Excision of the elbow-joint.—The conditions appropriate for excision of the elbow-joint are summed up by Mr. Gant as—(1) Functional inutility of the limb, depending on disease of the joint, resulting in destruction of the articular cartilages, without the supervention of anchylosis, will always justify excision. (2) Osseous anchylosis, and especially in connection with a useless position of the limb, will also justify excision. (3) As regards the amount of bone removed there is not the same limitation as in the case of the knee-joint. It is not so important to keep within the limits of the epiphyses. The removal of only a thin, superficial section of the articular ends of the bones in the elbow-joint, leaving the section ends too nearly in contact, is apt to be followed by osseous union, and an unsuccessful result of the operation.

On the other hand, any new bone which may, not unfrequently, have been produced, in the form of a spiculated enlargement of the articular ends *above* their diseased portions, and thereby limiting the disease, should not be included in the excision. *State of the limb.*—Of 104 recoveries, out of 119 cases, the majority (*minus* 15 amputation cases) had useful limbs, as proved by the patient being able to resume his ordinary avocations. Injury of the ulnar nerve—an occasional accident during the operation—is followed by loss of sensation in the little finger and adjoining side of the ring finger, with, perhaps, loss of motion and wasting of the muscles; but the sense of touch will probably return and the other ill consequences cease, apparently by reunion of the wounded nerve. This accident, judging from the digital paralysis, happened, apparently, in one of his own cases; but the symptoms passed off entirely, as the functional use of the finger showed, for the patient was a seamstress. *Re-excision* may be practised—as in the knee—when necessary, rather than amputation, and even a third attempt, it is said, has been followed by a good result. Of 197 cases of recovery, only in three, is it noted that re-excision was practised. Of five cases, under Mr. Gant's care, he had to re-excise in one, with a good result. *Secondary amputation.*—Of one collection of 104 cases of recovery, fifteen underwent amputation subsequently. Of another 197 recoveries, three, only, were subjected to amputation, with one fatal issue. (Ibid., August 26, 1871, 283.)

Mr. Maunder, in the course of some remarks on primary excision of the elbow-joint (ibid., May 20, 1871, 679), proposes a modification in the plan of performing the operation. Hitherto, when the H or ⊦ incision has been adopted, the transverse or the semi-transverse cut has severed those very structures—the tendinous prolongations of the triceps to the fascia of the forearm—by which, as Mr. Maunder has demonstrated both on the living and the dead subject, extension by the triceps muscle may be *always* secured. The integument having been divided, the triceps muscle just above the olecranon should be cut longitudinally. The inner portion is to be detached from the end of the olecranon, and it, with the ulnar nerve and soft parts along the inner side of the bone-ends, are to be separated from the bones. The outer half of the severed muscle is to be cut transversely, but is to be scrupulously preserved continuous with its tendinous fibres, which run forward between the point of the olecranon and the external condyle of the humerus. When this structure, together with muscular fibre, is detached from the subjacent bones, a broad and thick band of tissue will have been preserved, competent, hereafter, to extension of the forearm. The subsequent steps of the operation are performed as usual. Mr. Maunder describes his operation and gives a sketch of the important part of it, in the 'Brit. Med. Journ.,' July 29, 1871.

A new method of excising the elbow-joint in cases of anchylosis.—Mr. Annandale having had satisfactory results in several cases of compound fracture or dislocation of the lower end of the humerus, by the "primary" removal of the injured bone and the tip of the olecranon, without interference with the head of the radius or ulna, he was led to think that in cases of anchylosis, the removal of only a portion of the lower extremity

of the humerus, together with any new, osseous material likely to interfere with the future mobility of the joint, would lead to satisfactery results. In a case of the kind he adopted the following plan. He made two lateral incisions, one parallel and external to the ulnar nerve, the other internal to the projection of the external condyle. The ulnar nerve was drawn inwards and then the bones cleared, partly from the inner and partly from the outer incision. The attachments of the triceps and biceps were left untouched. The tip of the olecranon was then removed, the ligaments and the osseous union divided, and a copper spatula having been passed between the anterior aspect of the joint and the separated structures, the lower end of the humerus was sawn through. The head of the radius did not move freely on the ulna, so the knife was carried round to divide adhesions, and a thin slice of the articular surface was sawn off. The removal of some small portions of new, osseous material completed the operation. Should the anchylosis be greater, after separating the soft structures, Mr. Annandale would introduce the narrow saw under the triceps muscle close to its insertion, saw completely through the anchylosed joint, and then remove as much of the lower end of the humerus as seemed necessary. ('Lancet,' December 21, 1872.)

Resection of the elbow for anchylosis; formation of a movable joint.—Dr. Czerny relates, in the 'Archiv für Klin. Chirurg.' (xiii, 225), the case of a girl, æt. 13, who, in September, 1868, came under Dr. Billroth's care. Three years previously, she had had inflammation of the elbow; the joint had become anchylosed at an angle of 145°; and, on admission, there were six fistulous openings discharging pus abundantly, and caries of the ulna was detected. In the following month the ends of the bones were excised; the portion removed being three and a half centimetres long, in the aspect of flexion, and six and a half centimetres long, in that of extension. The patient recovered with a joint which she could bend and extend between the angles of 60° and 113°; rotation, however, was lost. Two and a half years after the operation she died of pneumonia following an attack of suppuration of the knee. On examination, there was found not much difference, in length, between the two upper limbs; and, when viewed externally, the joint, that had been operated on, had a normal appearance. The muscles near the joint had their normal attachments; the triceps was much atrophied, and ended in a portion of bone eight inches long and three broad, which was united to the radius; this was evidently a rudimentary olecranon. There were two, distinct condyles at the end of the humerus, having between them a concave, articular surface corresponding with two facets on the upper end of the radius and ulna. The articulating surfaces were covered, though not entirely, by cartilage; and there was a distinct synovial membrane.

A boy came under Dr. Watson's care with symptoms of dislocation of the radius backwards of some duration. There was some anchylosis (fibrous). Excision was performed. The dislocation was accompanied by partial separation of the trochlear epiphysis and laceration of the orbicular ligament. There was also partial absorption of the articular surface of the trochlea and new, osseous deposit upon the greater sig-

moid cavity of the ulna, together with fibrous bands passing between the ulna and the humerus, constituting a partial, fibrous anchylosis of the joint. ('Ed. Med. Journ.,' Jan. 1871, 652).

An old case of dislocation of the elbow, treated by excision, and according to the antiseptic method, is noted by Dr. Marshall. ('Brit. Med. Journ.,' May 27, 1871).

Anchylosis of the elbow; excision of the extremity of the humerus.—The anchylosis followed a comminuted fracture of the articular extremities of the humerus, radius, and ulna, in a patient about twenty years of age. Dr. Watson performed a *new and original operation*. A linear incision was made over the inner side of the olecranon, in the line of the ulnar nerve. The latter was dissected away with the soft parts and turned over the inner condyle. The joint was then opened, freely, in front of the internal condyle, and the latter removed with cutting pliers. The external condyle was then cut off, through the same wound, but from within outwards and from below upwards, and was twisted out of its bed with lion forceps. The end of the humerus was then turned out and smoothed off with the saw. *The insertions of the triceps and of the brachialis anticus are not interfered with*, and, therefore, the movements afterwards are more perfect. ('Edin. Med. Journ.,' Dec. 1871, 559.)

Excision of both elbows.—Mr. Cooper Forster records a case of excision of both elbows. ('Lancet,' Jan. 6, 1872.)

Excision of the elbow for compound dislocation.—The case of a woman, æt. 40, of intemperate habits, who was admitted into the Sunderland Infirmary, under the care of Mr. E. A. Malins, is recorded in the 'Lancet,' Aug. 31, 1872. The accident occurred on January 17th. The dislocation could not be reduced even under chloroform. There was a wound on the inner side, and another behind. The latter was enlarged and excision was performed. The patient did well afterwards. On March 1st the wound was quite closed. The patient could bend the forearm to a right angle, and rotate it without assistance. "It is interesting to note that, although the patient was an unhealthy syphilitic woman, and the parts were considerably damaged, yet the result was good." Iodide of potassium was given her.

Excision of the wrist.—One of the patients whose case was recorded in the 'Lancet,' 30th March, 1872 (case No. 3), was exhibited by Mr. Lister to the Med.-Chir. Soc. of Edinburgh, at the end of about seven years. The result was very satisfactory. ('Edin. Med. Journ.,' Aug. 1871, 144.) In one case, Mr. Hancock made a semilunar incision across the dorsum, dissected up a skin flap, and pulled the extensor tendons aside. ('Lancet,' Jan. 22, 1872.) Mr. Sydney Jones records a case; the patient was a male, æt. 42; a useful hand resulted. Mr. Lister's method was adopted. A lithographic illustration of the condition of the patient is given. ('St. Thom. Hosp. Rep.,' n. s., 1871.) Drawings of a specimen, showing the results of an excision of the wrist, are given in the 'Brit. Med. Journ.' Jan. 6, 1872, 11.

Excision of proximal phalanx of right thumb for enchondroma.—Reeves Bell narrates a case (with illustrations) in 'Lancet' Dec. 14, 1872.

Excision of the hip-joint.—Mr. Grant mentions the following ma-

ditions as appropriate for excision :—(1). Destruction of the articular cartilages without the supervention of anchylosis, will always justify operative interference by excision. The state of the general health should primarily determine the necessity for excision, in all cases, and not any arbitrary consideration of the period of the disease and the condition of the joint. Whenever, therefore, the general health is manifestly failing, whatever may be the stage of the hip-joint disease, excision should be resorted to and without further delay. On the other hand, the most extreme state of constitutional exhaustion, previous to the operation of excision, may be followed by recovery after removal of the diseased bone. (2). Osseous anchylosis with malposition will *not* justify the peril of attempted excision. Section of the neck of the femur is practicable. (3). In the *femur*, the diseased portion, removed, may include the head, neck, great trochanter and shaft, entering even into the medullary canal. In the *acetabulum*, the diseased portion may include the whole floor of this cavity, and even extend to the adjoining portions of the ilium, pubes, and ischium. The acetabulum not unfrequently recovers itself, when the diseased head of the femur has been removed from further contact and attrition. (4). Dislocation is unfavorable for excision, as indicating an advanced stage of the disease constitutionally. The significance of this local condition, will, therefore, diminish in proportion to the absence of marked hectic and emaciation. *Operation.*—Mr. Gant prefers a T-shaped incision. *Excision of the trochanter major* may, occasionally, prove sufficient. The *after-treatment* is very simple. The limb may be laid straight in bed and retained in position, only, by a small side-pillow, or roller sand-bag, without absolutely fixing the thigh. The section-end of the femur is drawn up by muscular action and hitches just above the acetabulum, which, having been generally more or less superficially carious, is thus left to recover itself, undisturbed by any attrition of the femoral end of the bone, while a new and firmly fibrous, movable joint forms, where the end of the bone rests above the acetabulum. There is very little tendency to displacement. The slight extra shortening, which results from leaving the limb to itself, is unimportant, compared with the advantages in regard to the acetabulum, and the formation of the best kind of new joint requisite for the functional use of the limb, in progression, as well as for support. *Results.*—Mr. Gant gives Dr. Hodges' and Mr. Hancock's statistics, tabulates those of Dr. Good of America (112 cases), and has collected recent ones from the various hospitals. He deduces the three following *general* conclusions respecting the rate of mortality. (1.) In different countries a very different mortality, being highest in France and lowest in England. (2.) An average death-rate of 1 in 4 or 5 (about the same as that of knee-joint excision for disease). (3.) Very different death-rates in the hands of individual surgeons; no mortality; 1 in 2, 3, 5; 2 in 3; 4 in 5, or even total mortality, probably owing to the severity of the cases selected. The mortality is less than half that of hip-joint amputation. *State of the limb.*—Of Dr. Hodges' 111 cases, 56 recovered, "with more or less useful limbs." Of Dr. Good's 112 cases, 52 recovered; 42 of these patients could use the limb, and in the

remaining 10 this result was not noted. Of the 42, 19 could walk without support, 9 with the help of a stick, 1 two sticks, 1 a splint, 1 a crutch, 2 two crutches. In 9 the manner of walking is not specified. In 40, of the 52 recoveries, it was especially noted that the limb supported the weight of the body. The ultimate period at which the cases were seen varied from three months to five years. Their cure was ascertained, in most cases, after two or three years. In Mr. Gant's own eight cases, the shortest period of known, permanent cure was two years and a half, and the longest period of known, permanent result five years. *The average duration of the period of recovery* has not generally been noted. In his own cases, the average period of *union* was three months. In extreme cases of hip-joint excision, extreme as to the amount of bone removed, the resulting state of the limb may still be successful. It was so, in two of the author's cases, after removal of four or four and a half inches of the femur with one inch more of cancellated bone scooped out. ('Lancet,' July 15, 1871, 77). The particulars of the author's own cases are given Aug. 5, 183.

Lectures by Mr. Hancock, on this subject, are given in the 'Med. Times and Gaz.' (February 24, March 16, April 13, 27, and June 1, 1872). A review of the whole subject is given, and narratives of most of the cases published, as well as cases of his own. He urges the importance of not waiting too long; insists on the point that it is not necessary for dislocation to have occurred, and that the presence of acetabular disease, or perforation, does not contraindicate operative interference. He gives the number of cases recorded at various ages, and the relative proportion of success under different amounts of disease.

Dr. Ashhurst, in remarking on a successful case, urges that the operation should be looked on as the last resource, not to be employed as long as a reasonable prospect remains of saving life in any other way. The statistics of nearly 400 cases to which he has references, shows, he thinks, the operation to be one of such gravity that it ought not to be undertaken unless when its necessity is very evident. The mortality was about one half, and one in three at the most favorable age for operative interference. The removal of the diseased bone should be as complete as possible. ('Am. Journ. Med. Sciences,' Oct. 1871, 434.)

Mr. Annandale showed a specimen, from a case in which he had operated, four months previously. For two months the patient did well, and then dropsy set in. After death, it was found that the cartilage of the acetabulum was destroyed, and that a kind of membrane had formed over the exposed bone. He believed that, if the patient had lived, this membrane would have become gradually converted into fibrous tissue, and the whole of the exposed bone healed. He thought the case was encouraging as regarded the performance of the operation, more especially as all the diseased section seemed to have been removed, and a new joint was apparently being formed. ('Edin. Med. Journ.,' Sept. 1872.)

Notes of four cases under the care of Mr. Gay are given in the 'Lancet' (June 8, 15, and 22 1872). Two of the patients were 7

years of age, and the others were 27 and 11. Three of them recovered with useful limbs. The patient, æt. 27, died. Also see cases by Mr. Gay, 'Path. Trans., xxiii, 188.

A case, in which the limb was subsequently amputated, is noted by T. Carr Jackson, 'Path. Trans.,' xxiii, 191.

Excision of the knee-joint.—Mr. Gant's experience leads him always to remove the patella. After the section of the bones the limb is extended, and the ends of the bones placed in even apposition—not absolute contact—and then a piece of sponge is held on the wound while the splints are applied. The extended limb is laid on a padded back-splint covered with oil-silk under the knee, this splint reaching from the folds of the nates to just above the heel. Mr. Gant *now* prefers to have the foot-piece part of the lateral splint, as thus the heel escapes pressure and a subsequent tendency to sloughing. McIntyre's splint he has long disused; it not only causes some pressure on the heel, and precludes access to that part for dressing, if requisite, but the trough, in which the limb lies, induces more wasting of the muscles than would otherwise ensue, and thence, also, a loosening of the splint at an earlier period than when it may be safely removed for cleansing, and reapplied. Broad strips of adhesive plaster are drawn round the limb and splint, immediately above and below the knee, another broad strip higher up on the thigh, and narrow strips around the ankle and instep. A roller bandage is applied from the foot upwards, and another, high up, from the thigh downwards, leaving the knee uncovered. An outside, interrupted splint, well padded, and covered with oil-silk above and below the interruption at the knee, and provided with a vertical foot-piece, is now applied; this splint, reaching from above the great trochanter downwards, and the end of the thigh-piece well supporting the very *end* of the femur externally, at the seat of excision, while the perpendicular foot-piece maintains the leg in position, and the upper end of the tibia in steady opposition with the femoral end of the bone. Elevation of the whole limb five or six inches will be found to further aid the latter purpose. A short, padded, femoral splint may, also, be placed in front of the thigh, terminating just above the femoral end of the bone; but if the external thigh-piece be not *too wide*, this anterior splint will scarcely be necessary, and he rarely uses it. The external splint is secured, by a roller bandage, from the foot to below the knee, and, by another bandage, from above the knee up the thigh, and over the end of the splint, with, perhaps, two or three turns around the pelvis. The use of the external splint is to counteract the tendency to displacement of the lower end of the femur, in three directions, after excision of the knee-joint—projection outwards, by abduction, rotation outwards, and projection forwards. Mr. Gant has had occasion to lengthen the outside splint to the axilla, so as to counteract a tendency to an irregular twist of the trunk, to the opposite side, in bed, whereby the lower end of the thigh is abducted or everted, with an angular projection outwards at the knee. *Rate of mortality.*—Three general conclusions may be established. (1.) A diminishing mortality as the operation has continued to be practised. (2.) Since the revival of the operation, and more recently, an average death rate of one in four or

five cases. (3.) Very different death rates in the hands of individual surgeons, varying from one, in two or three, to one in twelve, and one in nineteen or even less. The *average duration* of the process of recovery is considerable. In forty-eight cases, where the patella was removed, the average was 225 days, and in thirty-eight, where the patella was supposed to be left, the period was 255 days. The average duration was about eight months, therefore. In eight successful cases, all of them children, at St. Thomas's Hospital, the average was 206 days, or about seven months. In Mr. Gant's first case, a man, æt. 33, the period of osseous union was 60 days, or two months, the knee then supporting the weight of the trunk. The union has stood the test of twelve years' free use of the limb. The *average* period in his own cases has been, for the production of firm, or perhaps osseous union, three months; and, to regain a useful limb, three months more, in a starch bandage with gentle use of the limb, gradually, for support and progression. *Results* of twelve cases.—Osseous or firm union, and a straight limb in all the cases, except case 3, where it was incomplete, cases 4 and 5, which were subjected to amputation, and case 11, the *only death*, and from acute tetanus, in thirty-six hours, seventeen days after the operation. Period of union, average three months. *Average* period of removal of splints one month, when they were reapplied and removed at about the same interval till conclusion of treatment. *Re-excision* was performed in one case; *secondary amputation* in three cases. *Permanent result.*—Ultimate known period (1) eleven years; (2) one year and a half; (7) one year; (8) one year and a quarter; (9) one year and a quarter; (10) six months; (12) five months. ('Lancet,' May 13, and June 3, 1871, 638, 736.)

Mr. Treves passes in review, in considerable detail, the various sources of failure or of want of complete success which result from the neglect of certain precautions at the time of the operation or during the after-treatment. We must refer our readers to the paper itself. He describes a leather splint, which he has found useful, and in the perfecting of which he was indebted to Mr. Clouting. It consists of leather, stengthened, at the back, by a piece of iron about two inches wide, which is riveted to the leather. The length of one piece reaches from the heel to within two inches of the fold of the knee-joint, wide enough to surround two thirds of the circumference of the leg. Another piece reaches from about two inches above the joint of the tuberosity of the ischium behind, and, on the outside and front, as high as the crest of the ilium. These two pieces are connected by the piece of metal, which passes the whole length of the splint, to within half an inch of either extremity, and is firmly riveted by two rows of rivets. The leather is softened by soaking in water, and chamois leather is pasted on its inner surface. When the splint is applied, it is fixed by gum bandages. The limb is laid in a McIntyre for twenty-four hours, and then swung, when the gum and leather are firm. ('Lancet,' Sept. 30 and Oct. 7, 1871, 463 and 508.)

A lecture, by Mr. Holmes, is published in 'Brit. Med. Journ.,' Oct. 12, 1872.

The case of a girl, æt. 6, whose knee was excised by Mr. Canton, is

recorded in the 'Lancet,' Jan. 20, 1872, 79. At the end of nine weeks the bones were found to be firmly anchylosed.

In the 'Edin. Med. Journ.,' Feb. 1871, three cases are recorded from the practice of Dr. Gillespie. Two were in young adults and one in a lad of fourteen. All were cases of chronic synovial disease. The first dressing was dry lint, afterwards weak, stimulating lotions. The soft parts healed in sixty-five, fifty, and thirty-five days. The bone was firmly united in ninety-five, fifty, and forty days, and the patient could walk without assistance in 140, 100, and 160 days respectively. A splint was kept applied for six weeks without intermission.

Mr. Sydney Jones narrates four cases. The patella was not removed. One patient died of pyæmia; the others did well. The patient, who died, was a woman, æt. 34. Those who recovered were two men, æt. 21 and 30, and a lad, æt. 13. Illustrations of the condition of the patients are given. ('St. Thomas's Hosp. Rep.,' ii, 283.)

Mr. Terry narrates two cases of successful excision of the knee. One patient was a man, æt. 26, the other a boy, æt. 12. The first left the hospital in three months, and the limb was sound at the end of six years. The second left in fifteen weeks; his limb was sound after two years. ('Lancet,' Jan. 13, 1872.)

Mr. W. W. Moxhay narrates eight cases in which he performed excision of the knee-joint. Seven of the patients did well, and when heard of, after the lapse of some time, had thoroughly useful limbs. In one case a patient, æt. 40, amputation was necessary, and was followed by recovery. The other patients were males, æt. 29, 11, 35, and 10, respectively, and females, æt. 17, 8, and 20. The average stay in the hospital, after the operation, was about three months. ('Med.-Chir. Rev.,' April, 1871, 487.)

Anchylosis of the knee; excision of a wedge of bone.—Dr. Morton gives the details of a case of complete, osseous anchylosis of the knee with extreme flexion, in which he removed a wedge of bone with complete success. The patient was twenty-seven years of age. The flexion was at an acute angle, "the leg being flexed to the full extent upon the thigh." The union was so complete and so dense that drilling was out of the question. A horseshoe flap was dissected up, and then a wedge-shaped portion of bone, including the condyles of the femur, a portion of the head of the tibia, and the patella, "four and a half inches across the base, and two and a half inches in depth," was removed with the saw. The bony tissue, cut through, was so very dense that even the portion covering the popliteal vessels could not be broken, as is usually done, and it was found necessary to use the saw until the section was completed. There was no necessity for dividing any of the hamstring tendons. Three months after the operation the patient could raise the limb, union having taken place to a considerable extent. Several fistulæ existed, through which necrosed bone could be felt. Five, six, and seven months after the operation some large fragments of bone, corresponding to the sawn surfaces, were removed and the sinuses healed up. The patient left the city, for a distance, nine months after the operation, able to use the limb well. There was shortening to the extent of two inches. Fourteen months after the operation, the man

was, and had been, at work as a labourer in the country, and could walk long distances. The writer says Dr. Buck was the first to remove a wedge of bone from the situation of the joint to remedy anchylosis, and this is the operation which has since been generally adopted when drilling is impracticable. Dr. Hodges gives nineteen cases, of which ten recovered, eight died, and amputation was performed in one for delayed union. Lyon gives eleven other cases, of which ten recovered and one died; eight had useful limbs, one was discharged with firm union, but before the limb had been used; and in one case it is merely stated that the patient recovered. The author has collected nine other cases. Of these, eight were cured and one died. Of twenty cases, therefore, since Dr. Hodges's record, only two have died. The former fatality is not easily explained. Sir W. Fergusson has also operated, successfully, on two cases of *osseous anchylosis after excision of knee in faulty positions*, by removing wedges. Of forty-one cases in all, of operations for osseous anchylosis, thirty patients recovered, ten died, and in one case amputation was performed. Figures of the patient, before and after operation, are given, and a tabulated statement of eleven cases, recent. ('Am. Journ. Med. Sciences,' April, 1871, 321.)

Mr. James Adams records the following case, and remarks that there are certain cases of knee anchylosis which can easily be cured by the operation of subcutaneous osteotomy, and there are others in which anything short of an excision of a wedge-shaped piece is wholly useless. Diagrams are given of the state of parts in his case, and the shape, &c., of the piece removed by him. The patient was a lad, æt. 14, fairly nourished, but pale. The right leg was fixed at a right angle, the skin, at the point of flexure, was marked by numerous cicatrices on all sides, some, especially those in the popliteal space, were puckered in and adherent to the bones. There was absolutely no pain or tenderness; there was the most complete rigidity (under chloroform); the adjacent portions of the bones were expanded and rounded, so as to leave no interval or depression between them; the position of the patella could not, with certainty, be made out. The disorganization of the joint occurred when he was one year and a half old, consequently the limb had been wholly useless for twelve years and a half; notwithstanding this there was not much wasting, and no appreciable shortening. A semicircular flap was cut and raised. The original point of union of the bones at the joint was sought for, but no indication of it could be found. A cut was then made with the saw, nearly vertically, through the femur above the condyles, not extending quite through the bone, and this was joined by a second, oblique cut, sloping from before downwards and backwards, meeting the first about half an inch in front of the posterior surface. The piece between them was then removed, and the remaining portion broken, by flexing the limb. The vessels were thus completely avoided. The ends were smoothed down with a chisel until the limb could be easily straightened. It was then put up on a back splint, specially made, and the wound covered with wet lint. A certain amount of suppuration followed, and a few abscesses required opening. At the end of eight weeks there was firm union. One noteworthy circumstance was, that for several days after the operation, the boy was

literally tortured by pain in the back, which was attributed to his being obliged to lie in a position which, for obvious reasons, he had not been in the habit of assuming. The limb, at the date of note, was firm and straight, with less than two inches shortening. A few sinuses remained open. ('Brit. Med. Journ.,' Oct. 26, 1872.)

Dr. Watson showed to the Med.-Chir. Soc. of Edinburgh a wedge of bone, which he had removed, from the site of the knee-joint, in a case of old-standing, rectangular anchylosis. The patient was an adult male, and recovered well. He could walk without assistance. In straightening the limb the hamstring tendons required division. ('Edin. Med. Journal,' Dec. 1871, 559.)

Complete, bony anchylosis of the knee-joint; subcutaneous osteotomy.—Mr. Little records the case of a girl, æt. 14. Both knees were contracted to a right angle. The left knee was straightened under chloroform, but the right knee was found to be firmly anchylosed. This had resulted from strumous disease, and the tibia was dislocated. "A serious operation, such as severing a wedge-shaped piece of bone, seemed out of the question, considering the feeble state of the girl's health, but as a subcutaneous operation, though possibly not successful, would probably be attended with little risk, I determined to attempt the division of the bone, somewhat after the method of Prof. Gross (see 'Bien. Ret.,' 1867-8, 256) of Philadelphia." "An incision, a third of an inch long, was made down to the bone, through the healthy skin on the outside of the knee, over the lower border of the outer condyle of the femur, about midway between the anterior and posterior aspects of the limb." Owing to the alterations in the positions of the bones it was impossible to ascertain the relations of parts accurately. A strong carpenter's chisel, rather less than a quarter of an inch wide, was inserted into the wound, and driven with a mallet through the united bones towards the inner side of the knee, until its point was felt. The chisel was then nearly withdrawn, and then driven through again, so that its point emerged somewhat higher, *i. e.* nearer the anterior surface of the limb than before. This procedure was repeated in different directions. Finally, the limb became movable, but could not be straightened, owing to contraction of the hamstrings. These were divided, but it was considered better not to persevere in attempts at straightening. During the next few days the girl complained a good deal of pain. On the sixth day the limb was placed on an extension splint. In three weeks she could put her foot to the ground and walked with crutches. A fortnight later she walked quickly and painlessly, though with lameness, without her crutches. This case is the first instance of subcutaneous osteotomy, for the relief of a completely anchylosed, large joint, performed in this country. ('Med.-Chir. Trans.,' liv, 247.)

Excision of the ankle-joint.—Mr. Gant treats of excision of the ankle joint ('Lancet,' Aug. 5, 1871, 183). Lateral incisions are sufficient. *Mortality.*—Of 32 cases, 7 died. Of these, 4 died of consumption, and 1 of secondary syphilis. The average mortality, therefore, is 1 in 16. Syme's amputation shows a mortality of 1 in 28. *State of the foot.*—Of the 32 cases, 21 recovered with good useful limbs. *Secondary amputation.*—Of the 32, only 2 underwent secondary amputation, and both re-

covered. In 2 cases under the care of the author, both patients recovered with useful limbs.

Dr. Watson showed a patient to the Medico-Chirurgical Society of Edinburgh, whose ankle-joint he had excised. The parts removed, consisting of the astragalus and the ends of the tibia and fibula, were also exhibited. The patient did well afterwards. At the end of ten months he could bear his whole weight on the affected limb, and walked smartly and readily. ('Edin. Med. Journ.,' Jan. 1871, 650.)

A successful case is noted and figured in the 'Med. Times and Gaz.,' March 2, 1872, under the care of Mr. Maunder.

A case, under the care of Mr. Canton, is noted in the 'Lancet,' Jan. 20, 1872, 80.

Excision of the ankle-joint and removal of tarsal bones.—Mr. Swain has had a case under care—a boy æt. 14—in which, at different times, he excised the ankle-joint and the bones of the tarsus for caries. The result was good. Illustrations of the state of the ankle are given. ('Brit. Med. Journ.,' Jan. 7, 1871, 10.)

Excision of the astragalus, malleoli, &c.—Dr. Watson employs a single, external, J-shaped incision. ('Edin. Med. Journ.,' Dec. 1871, 560.)

Excision of the astragalus.—Mr. Gant states that, of complete excision, 4 cases, only, are recorded in England. Of *partial* excision, in 27 cases, recorded, 8 were for caries; 5 terminated well, 1 ended in anchylosis, and, in 2, the result is not stated. Of *complete* excision, 109 cases are recorded; 14 were for *disease*, 13 for caries, 1 for necrosis. Of the 13 cases, 1 died, 8 recovered with good and useful limbs, 2 underwent secondary amputation, two years after the excision, and both recovered; in 2, the results were doubtful. The case of excision for necrosis did well. ('Lancet,' Aug. 5, 1871, 185.)

Mr. Hancock removed the astragalus, successfully, from the right foot of a man æt. 47. The bone was dislocated forwards and outwards and twisted. There was no wound. An incision was made directly over the bone. ('Lancet,' Jan. 20, 1872, 79.)

A case in which the operation was done, for *disease*, and another, for *dislocation*, are given in the 'Path. Trans.,' xxiii, 192, by Mr. T. Carr Jackson.

Excision of the astragalus and os calcis.—Dr. Morton removed the os calcis and the astragalus from a lad æt. 13, on account of disease. "A very perfect recovery followed, both as regards motion in the new joint and the usefulness of the foot, which was shortened about one inch." ('Am. Journ. Med. Sciences,' April, 1871, 424.)

Removal of both astragali in a case of severe, double talipes.—In the case of a boy, æt. 7, suffering from severe double talipes, for which much treatment had been employed without result, Mr. Lund determined to remove both astragali. A longitudinal incision was made over the most projecting part of the head of the bone, parallel to the antero-posterior axis of the foot, between the line of the outermost tendon of the extensor longus and the tendon of the peroneus tertius. After some difficulty, owing to the thick ligaments, the head of the bone was exposed and a gouge was applied to raise the bone, the scaphoid,

&c., being bent backward. In doing this a thin piece of the cup of the scaphoid was sliced off. A part of the external malleolus was also sliced off, owing to want of room. Mr. Lund then made use of a strong, blunt hook (figured), with a cutting concave edge. This hook was used, as a lever, to lift up the astragalus, and passing it round the calcaneo-astragaloid ligament, by simple traction, the latter was severed. This proved to be the key of the operation. Seizing the bone with lion forceps, a few touches of the hook set the bone at liberty, and it was removed. In operating on the second foot, only the hook was used, and the astragalus was removed alone. Everything was done in accordance with Mr. Lister's directions for antiseptic treatment. The result of the operation was all that could be desired. On the sixty-first day elastic traction was employed. The boy then had shoes ordered, and at the end of a month he could walk well. Mr. Solly in one case removed the cuboid bone, but there does not appear to be a case of removal of the astragalus, for talipes, on record. ('Brit. Med. Journ.,' Oct. 19, 1872.)

Excision of the os calcis.—Mr. Gant prefers the horizontal, horseshoe incision over the heel, forming a *sole-flap*. A vertical incision forming a heel-flap, like a Syme, is useful in certain cases, as adapted for Syme's amputation, if necessary. *Results* of *partial* excision, in 42 cases, 38 were for *disease*—25 caries, 12 necrosis with sequestra, and 1 necrosis. Of the 25, 1 died, the day after the operation, of diarrhœa, 14 recovered at periods varying from six weeks to six months, 2 required a second operation, but recovered, and 1 underwent secondary amputation; while, of the remaining 7, the result is not stated. Of the 12 cases, 3 recovered, 1 required a second, 1 secondary amputation, and, of 7, the result is not stated. *Complete excision.*—Of 18 cases (the particulars of which are authenticated), in 14 the disease was scrofulous; and in 11, of these, this condition was entirely constitutional, in 1 it is said to have originated from a nail having been run into the heel, and, in 2, to have followed sprains. Of the 11 cases, 1 died of diphtheria, 7 recovered, and with perfect use of the limb, while 3 suffered secondary amputation, 2 from recurrence of the disease in the remaining tarsal bones and owing to erysipelas. Of the 3 cases induced by injury, 2 recovered completely; and the result of the third was doubtful. The *general* results of the complete excision of the os calcis in 34 authenticated cases—1 died of diphtheria, 25 recovered completely, 4 underwent secondary amputation, and, of 4, the results are not given. In one case of caries of the os calcis, Mr. Gant also removed the cuboid bone and a small portion of the external cuneiform bone. The patient recovered, and with a thoroughly sound and permanently serviceable foot; this result being noted after two years. The ankle-joint had free motion. He walked without the aid of a crutch or stick. The case is reported in the 'Lancet' of July 23rd, 1864. ('Lancet,' Aug. 5, 1871, 185.)

Mr. Terry narrates the case of a man, æt. 19, whose os calsis he excised. The foot was thoroughly useful at the end of six years. ('Lancet,' Jan. 13, 1872.)

Removal of the second metatarsal bone and subsequent excision of all

the tarso-metatarsal articulations.—The patient was a middle-aged man, who had had a plank fall on his foot four months before admission. There was a sinus leading down to the second metatarsal bone, which was carious in nearly its whole extent. On Nov. 24, 1871, Mr. Holmes dissected out the second metatarsal bone. Various abscesses formed subsequently, and on Jan. 11, 1872, Mr. Holmes made a semilunar incision on the dorsum of the foot, and dissected the flap upwards. He then disarticulated at the tarso-metatarsal articulation, and sawed off the ends of the four tarsal and then of each of the four remaining metatarsal bones. The disease seemed to be confined to the portions of bone removed; on February 14th he was sent to Wimbledon. On April 8th "the wound was entirely healed, except a small, superficial sore at the inner part. He could just put his foot to the ground. The toes were movable to a very slight degree, apparently from the traction of the extensor tendons being transmitted through the cicatrix. The second toe was out of the line of the others, riding upwards between the first and third toes, which touched each other. This, however, had been the case before the operation. The man was well satisfied with the condition of his foot." "Many still regard excision of the ankle with disfavour; yet, as far as I can judge from a limited, personal experience, there can be no question that, in cases of traumatic origin, sound union may be confidently expected, and the patient in such cases recover rapidly, and with a foot little inferior to the healthy one. Three such cases have occurred to me and recovery has been very rapid in all of them. But excisions of the bones or joints of the foot itself are still less generally practised, although the experience of many surgeons testifies to the great success which sometimes ensues upon the complete removal of the os calcis, the astragalus, or other single bones of the tarsus, while, if I mistake not, common experience also testifies to the very frequent disappointment which follows upon gouging or other partial measures. "It is worth remembering also that the prospects of a surgical operation are always much better in such cases as can be clearly traced to a traumatic cause." ('Clin. Soc. Trans.,' v, 207.)

Excision of the lower jaw.—In narrating a case in which he removed part of the lower jaw in connection with epithelial cancer of the fauces, &c., Dr. Watson especially lays stress on the advantages of the plan he adopted. He made an incision from the angle of the mouth obliquely downwards to the base of the jaw as far as the angle, and then upwards, along its ascending ramus, as far as the level of the lobe of the ear. The lower jaw was then divided in the bicuspid region, and the insertion of the internal pterygoid having been divided by a sweep of the knife along the inner side of the bone, the base and angle, upon the affected side, was turned outwards at right angles to the cheek. The coronoid process being affected it was necessary to disarticulate after dissecting the tissues away from the bone upon its outer or masseteric aspect; this was easily accomplished by twisting the articular process out of its bed, dividing upon the bone the parts anterior and internal to the articulation, so as to avoid injuring the internal maxillary artery. In attacking growths at the posterior and lateral aspect of the buccal

cavity, the division of the lower jaw affords easy access, and entire control over the bleeding. In most cases it is not necessary to extirpate any of the bone. If extirpation is required two things deserve notice in effecting it: 1st, that an incision which ascends no higher than the level of the lobe of the ear suffices and thus avoids division of the portio dura; 2nd, that in the removal of the jaw, at the articulation, division of the internal maxillary artery may easily be avoided. ('Ed. Med. Journ.,' Jan. 1871, 651).

In order to avoid division of the facial nerve and parotid duct in removing the inferior maxilla, Mr. Lizars has adopted the following plan of operating. He made one *straight* cut from the angle of the mouth towards the upper part of the lobe of the ear as far as the posterior margin of the ascending ramus of the maxilla; he denuded the jaw of its periosteum, the masseter and that part of the temporal muscle attached to the external and lower part of the coronoid process (using the handle of the scalpel principally), extracted the lateral incisor, and divided the jaw with the bone-pliers (the subject being young); then seizing the jaw at its cut end, drew it outwards and upwards, thus facilitating the removal of the mucous membrane and muscles from its inner surface, dividing the inferior dental nerve and internal lateral ligament with the knife, and by keeping close to the bone, avoided the internal maxillary artery. The coronoid process and neck of the jaw, now being free, were divided with the pliers, and nearly the half of the jaw easily removed. (Communicated to the 'Lancet,' Sept. 28, 1872, by Sir W. Fergusson.)

Tumour of the lower jaw.—Mr. Hamilton records a case of cystic tumour of the lower jaw, on which he operated successfully. The condyle was disarticulated at the joint, and nearly one half of the bone was removed. ('Dub. Journ. Med. Sci.,' April, 1872, p. 283). A case under the care of Mr. Christopher Heath, in which he removed a large fibro-cystic tumour of the lower jaw, is noted in the 'Lancet,' March 23, 1872, 397, and 'Path. Trans.,' xxiii, 181.

Excision of half of the lower jaw.—Mr. W. Thomas, of Birmingham, removed the left half of the lower jaw on account of a myeloid tumour. The growth had been recognised for about seven years. The left lower incisor tooth was extracted, an incision made along the ramus from the condyle to the median line of the lip, the structures dissected up, and the jaw divided at the symphysis: after a little dissection the tumour was removed by sawing the bone below the condyle, and then afterwards the condyle was dissected out. The divided mucous membrane of the mouth was stitched together, and the flap of skin laid down and united by numerous silver wire sutures. The mass removed weighed twenty-three ounces and a half. On section it was found to consist of a thin, bony envelope surrounding a mass of pinkish-white substance a little firmer than brain. In its substance were two cysts. Seventeen months after the operation the patient was in excellent health, and presented no sign of the recurrence of the disease. ('Lancet,' July 15, 1871.)

Tumour of the antrum; excision of part of the superior maxilla.—Sir W. Fergusson removed the greater part of the superior maxilla for a

tumour of the antrum. The patient recovered. The growth proved to be fibrous, and was undergoing calcareous change. A complete account of the histology is given by Dr. Goodhart. ('Med. Times and Gaz.,' May 25, 1872.)

Excision of the superior maxilla.—A case in which Dr. Gott excised the superior maxilla for encephaloid disease is recorded in the 'Am. Journ. Med. Sci.,' July, 1871, 289.

Removal of both superior maxillæ.—Mr. Canton removed the left superior maxilla from a woman, æt. 35, in 1864, for myeloid tumour, and, in 1871, the other maxilla for fibrous tumour. The deformity was remarkably slight. ('Lancet,' Jan. 20, 1872, 79.)

Anchylosis of the lower jaw; formation of an artificial joint on each side.—Dr. Maas relates, in the 'Archiv für Klin. Chirurg.,' xiii, 429, the case of a man, æt. 27, who was admitted into the hospital, at Breslau, on account of inability to open the jaw. At the age of 7 he had scarlet fever; during which, however, he was not confined to the house. About this time, in consequence of a cold, he was seized with severe pain in the articulation of the jaw, on both sides, so that he could not open his mouth. The pain ceased, but the inability to move the jaw increased, and became complete when he was 10 years old. His food consisted partly of fluids, partly of finely divided meat, which he managed to thrust into his mouth between the molar teeth, which were deficient. The shedding of the milk-teeth was attended with much difficulty and pain; the permanent teeth were arranged irregularly, and most of them were displaced laterally. On admission the patient had a pale, yellowish aspect, was in moderately good condition, and spoke distinctly though with a somewhat muffled tone. The upper part of the face was well developed; but the lower jaw was retreating, and the alveolar edge was observed to be far behind the corresponding part of the upper jaw. Attempts to move the jaw produced pain in the articulation on the right side, but failed, utterly, in opening the mouth, even when the man was narcotised. Dr. Middeldorpf made an incision along the lower edge of the jaw on the right side, and, by means of the chain saw and Liston's forceps, removed a wedge-shaped piece of bone, having its base below. The result of this was that the mouth could be opened, passively, to the extent of about an inch. The teeth were found to be mostly carious, or to be so abnormally placed as to be useless; one molar on the left side, and two on the right, stood out horizontally from the alveolar border. The teeth were removed, and attempts were made for some time to produce separation of the jaws. These, however, had very little effect; and, between four and five months after the first operation, the left side of the jaw was operated on by Dr. Fischer in a similar manner. Four months after this the patient could voluntarily open his mouth, to the extent of 3·2 centimetres; and his general condition and appearance were much improved.

Dr. Bottini, in 1872, communicated a somewhat similar case to the Royal Academy of Medicine at Turin. The patient was a lad æt. 17, who had fallen on his chin when seven years old. Inability to open the mouth gradually set in, so that in a few months he was quite unable to separate the jaws. Bottini opened the mouth forcibly during narcosis,

and inserted a wedge; this, however, was so troublesome to the patient that it was removed. Resection was now determined on, a perpendicular incision was made on one side, and the head of the jawbone, after the periosteum had been separated, was removed by the chisel and hammer. This had no appreciable effect; and it was only after the operation had been repeated on the other side, that the jaw could be freely moved. The wounds were healed in six weeks, and the movements of the jaw were normal. Nothing abnormal could be found in the excised portions of bone; but the inter-articular cartilages were absent. ('Wiener Med. Wochenschr.,' No. 27, 1872.)

Removal of the scapula.—Mr. Spence exhibited to the Med.-Chir. Soc. of Edin. a tumour involving the scapula, which he had removed. The tumour had been growing for twenty-three years. The patient, a man, æt. 65, was in general good health. The tumour was apparently very loosely connected with the textures around it. Mr. Syme saw the man eighteen years before, and told him that it might not trouble him if he let it alone. When first seen by Mr. Spence, the tumour was not so large as it had become at the time of removal, and was exhibited to the society. It was movable, bound down by the tissues to the scapula, but apparently not connected to the bone. The man came into the hospital in bad health, took erysipelas, recovered, and was dismissed for a time. When he came back there was a change in the tumour. The pain was very great at night, and the pulse was quickened. The growth was still apparently movable and smooth on the surface, but from the appearance of the skin and of the patient Mr. Spence was of opinion he would have to remove the scapula. He made a preliminary incision, and the tumour felt so loose he thought it would come away, but when he came to a deeper part he found a soft mass involving the glenoid cavity. Accordingly he proceeded to perform excision of the tumour with the scapula. After examining the part, carefully, he found a series of prismatic bodies of milk-white appearance and opaque. He removed them, and they turned out to be lymphatic glands. He thought the growth malignant. The man recovered well. One difficulty in the after-treatment was found to consist in the tendency of the head of the humerus to project through the line of incision. At this part, there being nothing but skin, the head of the bone came against it and had a tendency to protrude. When, during the operation, the clavicle is sawn through, so as to expedite matters, the sharp section of bone projects beneath the thin skin, and the overhanging arch is wanting. He would be inclined, in future, to disarticulate the clavicle, and so leave the rounded end of the bone. This would require less incision and less uncovering of the head of the humerus, and would produce a better result. The man was dismissed, cured, three months after the operation. ('Edin. Med. Journ.,' Aug. 1872, 178.)

Fibroma of the inferior costa of the scapula, &c.; removal with part of the scapula; result not stated. (Mr. Hill, 'Path. Trans.,' xxii, 194.)

The pneumatic aspirator.—This instrument has been introduced into practice by M. Dieulafoy for the purpose of preventing the access of air during the tapping of any tumour suspected to contain fluid—of the bladder, chest, &c. It has been improved by Weiss and others. It

was described by M. Dieulafoy, at a meeting of the Academy of Medicine in Paris, on April 19, 1870. ("De l'aspiration pneumatique sous-cutanée, méthode de diagnostic et de traitement, par le Dr. Georges Dieulafoy.") Claims of priority were made by MM. Langier and Jules Guerin, the latter stating that he had had an instrument made on the same principle thirty years ago.

The aspirator may be described, shortly, as consisting of a syringe with an air-tight piston, capable of creating a vacuum, and a series of fine, hollow needles (or a trocar and canula) fitting on to the syringe. The latter is provided with an outlet as well as an inlet, each having a stop-cock. The syringe is exhausted by drawing up the piston while the taps are turned to prevent entrance of air. A needle is selected, or a trocar and canula, attached to the syringe, and thrust a short distance into the cavity to be emptied. The stop-cock is turned on, and the fluid rushes into the vacuum in the syringe, without the possibility of air entering the cavity tapped. If preferred, the syringe need not be exhausted till the needle is thrust in, and thus the traction force can be regulated. When the syringe is full the inlet tap is shut, the other opened, and the piston forced down. The fluid is conveyed by a tube into a convenient receptacle. Messrs. Khrone and Sesemann supply a form of apparatus more convenient in some respects. It consists of a large, glass jar, in the top of which is inserted a syringe and a tube. The syringe is used to exhaust the glass jar. To the tube is attached a convenient length of india-rubber tubing, to the end of which the needle or trocar and canula can be attached. This apparatus is easier to work if there is a large quantity of fluid to be removed. Considerable force is required to draw up the piston of the ordinary syringe, and is tiring after a time.

Dr. Anton Lohmayer, of Esseg, a former assistant of Billroth, gives, in the 'Wiener Med. Woch.,' August [illegible] and [illegible], 1871, notes of 14 cases in which he used the aspirator: cold abscesses, hydrops genu., tumor albus genu., &c. This paper contains an interesting, historical summary of attempts made in the same direction as that of Dieulafoy.

Mr. Jessop gives illustrations of the surgical uses of the pneumatic aspirator in abdominal tumours, a pelvic tumour, hernia, hydrocephalus, abscesses, effusion into knee-joint, &c. ('Brit. Med. Journ.,' Dec. [illegible], 1872.)

See, further, *Aspiration of intestine.*

Cleft palate.—Mr. T. Smith narrates forty cases in which he has operated for clefts of the hard and soft palates under chloroform. In twenty-five cases, he closed the whole cleft at one operation. In nine of these, a complete cure was effected; in eight, there was only a small central hole left; in two, failure resulted; in three, only the hard palate united; in one, the soft only, and in two, a large hole remained in the palate. [illegible] to attempt to unite the whole at once. Mr. Smith recommends that the part of the cleft should be brought together first, which seems most easily approximated, whether it is the hard or soft palate. This proceeding, if successful, secures for the most difficult part of the palate a larger supply of blood in the subsequent operation. He figures a new form of gag, an improved needle for wire, needles for silk, and a catcher for pulling the silk

through. He only divided the muscles in a few cases, trusting to incisions. ('St. Barth. Hosp. Rep.,' vii, 153.) Mr. Francis Mason describes a plan he has adopted for improving the voice after a cleft of the palate has been closed. The operation may be performed at any time after the closure. A narrow spatula is passed behind the soft palate and then an incision is made in the soft palate on either side, just at the inner side of the hamular process. The palate retracts by muscular action and is converted into a loose, movable curtain, which effectually shuts off the communication between the posterior nares and the mouth. A diagram is given. Eleven cases have been operated on. ('St. Thom. Hosp. Rep.,' ii, 271.) Mr. Hulke operated on a little girl, æt. 2½, who had a cleft of the soft palate, under the influence of chloroform, using Smith's gag. The sutures were torn out at the end of a week in a fit of coughing. He operated again at the end of thirteen months, using silkworm-gut sutures. Perfect union throughout the whole of the cleft resulted. ('Lancet,' Oct. 14, 1871, 539.) Dr. Whitehead records two cases in which he operated successfully, the patients being anæsthetised. In several cases he believes bone has been produced in the new palate.—('Amer. Jour. Med. Sciences,' Jan. 1872, 75.) A case of cleft of the hard and soft palates operated on successfully at one operation, in a man of thirty-five, is recorded by Dr. Whitehead. A special gag and various instruments, which are figured, were employed. The patient was relieved. ('Amer. Journ. Med. Sciences,' July, 1871, 114.)

Scissors for removing sutures.—Mr. Thomas Smith uses a pair of scissors with a fine hook at the end of one blade, and there are flat surfaces on each blade, behind the cutting edge, to seize the suture fast when divided. ('Lancet,' May 13, 1871, 645.)

Improved gag for use in operations on the mouth, &c.—In a clinical lecture on epithelioma of the tongue Mr. Wood describes and figures a gag somewhat similar to Mr. Smith's, acting on both sides, but without a tongue-piece, very strong and having a transverse connecting piece passing under the chin. ('Lancet,' Sept. 28, 1872.)

Removal of tumours of the breast.—The results of Mr. Syme's practice in the removal of tumours of the breast show, that of fifty-five operations which he performed, for simple tumours, recovery followed in all. In 147 cases of carcinoma, death followed in 10. Two of the patients died of shock; the others of erisipelas or of inflammatory affections of the thoracic viscera. ('Edin. Med. Journ.' July, 1871, 32.)

Cancer of the breast.—In the 'Lancet,' for Sept. 16, 1841, 398, is a record of cases of cancer of the breast, with special reference to the return of the disease after operation (compiled by Dr. Andrea Rabagliati) from the Bradford Infirmary. The following summary is given. Out of 10 patients, on whom 11 operations were made for cancer of the breast:—2 died of the operation; 3 have died since, 1 of return of the disease locally, and 2 died from constitutional return (of these 1 in the liver and 1 in the lung); in 2 more the disease has recurred locally; and in 3 there has been no recurrence of the disease up to the time of the note. In the cases of the last 3 patients the longest interval between the date of the operation and the time of the note was nine months,

in another, the interval was five months, and, in the last, the interval was three months. The disease had recurred in *every one* of the cases in which the axillary glands were involved at the time of the operation.

Excision of the mamma.—Dr. Joseph Bell advocates the employment of three incisions instead of the two oval ones usually employed. They are either curved, the convexities towards each other and leaving a triangular space enclosing the nipple, or V-shaped with a cross piece at the top (base) including the nipple, or, instead of the two lateral parts of the V, the incisions may be curved, with their concavities towards each other and the apex below the nipple, or, if more room is required, they may be continued downwards after crossing, curving away from each other. Figures are given. He also lays stress on removing all the fat and glands from the axilla if the latter is affected, and, also, the whole mass of subcutaneous fat lying in the line between the breast and the axilla, and which contains the lymphatics extending from the breast to the axilla. ('Edin. Med. Journ.,' Feb. 1871, 687.)

Cystic tumours of the breast.—Dr. James F. Goodhart has investigated the nature and development of cystic tumours of the breast, and his results are published in the 'Ed. Med. Journ.,' May, 1872, p. 1015, with illustrations.

Myxoma of the breast.—Specimens by Mr. Forster and Mr. Henry Morris, 'Path. Trans.,' vol. xxii, pp. 301 and 274.

Subcutaneous division of the neck of the thigh-bone.—Mr. W. Adams points out the cases which he thinks adapted for performing subcutaneous section of the neck of the thigh-bone. Six cases have now been recorded; five of them, for bony anchylosis, were successful; one, for fibrous anchylosis in a child, was unsuccessful. Mr. Adams enumerates the specimens of bony anchylosis which are preserved in the various museums. In anchylosis after rheumatism, pyæmia, traumatic inflammation, and strumous disease, arrested in an early stage, the operation answers well. It is only in cases of severe, strumous disease, with destruction of bone, that the operation is decidedly negatived. ('Brit. Med. Journ.,' May [illegible])

[illegible] Mr. Stokes publishes the statistics of [illegible] surgical operations performed by [illegible] from Jan. [illegible] to Dec. [illegible] ('Dub. Journ. Med. [illegible]')

[illegible] giving [illegible] ('St. Thomas's Hosp. Rep.,' [illegible])

[illegible]—A [illegible] case of Mr. [illegible] for a swelling of [illegible] was [illegible] and a half [illegible] with a [illegible] and [illegible] The opening [illegible] of the [illegible] It was very [illegible] substance [illegible] The cavity [illegible] In the [illegible] was [illegible]

or inner angle of the orbital process of the superior maxilla, and it required some force to extract it with the tooth forceps. It was a fully developed, sound, canine tooth. The gelatinous contents of the antrum were, in great part, cleared out. The boy recovered well and with no apparent deformity. The left, upper, canine tooth was wanting in its natural place. ('Lancet,' Aug. 19, 1871, 259.)

Distension of the antrum of Highmore.—Mr. Warrington Haward brought cases under the notice of the Clinical Society. ('Trans.,' v, 131.)

Myeloid tumour of the lower jaw; removal through the mouth without external wound.—Mr. Maunder records a case and gives a photograph. ('Brit. Med. Journ.' Jan. 13, 1872.)

Osteo-plastic resection for removal of naso-pharyngeal tumours.—It is now several years since Langenbeck devised "osteo-plastic resection of the upper jaw" for the removal of naso-pharyngeal tumours (see 'Year Book,' 1862, &c.). In his operation the bone was raised directly upwards or upwards and inwards. Ollier, of Lyons, opened the naso-pharyngeal cavity by cutting through the nasal and superior maxillary bones above, and turning the flap downwards. Another modification of this operation, having the same object, has been devised by Dr. von Bruns of Tübingen, and is described in the 'Berlin. Klin. Wochenschr.,' Nos. 12 and 13, 1872. In cases where the external nose is thrust towards the right cheek, a horizontal incision is made, through the upper lip (avoiding the mucous membrane), from a few millimètres below the right ala nasi to a point opposite the first, left, molar tooth. A second cut is made in the direction of the naso-frontal suture, its ends lying about a centimètre above and on the inner side of the angle of the eye; and a third is carried from the left extremity of the upper incision obliquely downwards and outwards along the side of the nose to the left end of the lower incision. The periosteum is divided in the incisions. The base of the anterior, nasal spine is now divided by a saw, and the septum is cut through, horizontally, by bone forceps. A saw is now inserted at the left, lower corner of the external nares, and the bone is divided, first outwards, then upwards, then to the right; the septum is then divided obliquely, downwards, and backwards. This being done, a chisel is inserted in the upper end of the lateral saw-cuts, so as to break through the connection between the right nasal and the upper maxillary bones, and the whole nose can be now turned over on the right cheek. When only one half of the nose requires to be raised, the horizontal incisions are carried only a little beyond the middle line; the anterior nasal spine, the septum, and the nasal bone, on the sound side, are left untouched, and the nasal bones are separated along their line of junction. If the tumour cannot be at once removed, a tampon may be introduced to prevent union, and the operation completed afterwards. Dr. von Bruns has performed the operation on three patients, all the cases being successful. In one instance it was necessary to keep the nose displaced for three weeks, but union readily took place at the end of that time, after freshening of the edges. The advantages of this plan are said to be, that the removal of the tumour is facilitated, more direct and extensive access to its base being gained; that the hæmorrhage is easily arrested; that the surgeon has the opportunity of keeping the part accessible, so as to perform further operations if necessary; and that healing takes place readily, without any disturbance of function.

Removal of pharyngeal polypi by the galvanic cautery.—MM. Corradi and Gozzini ('Lo Sperimentale,' 1871), describe a case of pharyngeal tumour which they removed by means of the galvanic cautery. The tumour was round, very hard, smooth, and was attached by a broad pedicle to the pharynx, the upper part of which it occupied. A Belloc's sound, introduced through the nostril, was passed between the tumour and the uvula; one end of a silk thread was, by means of the sound, carried into the nose, and the two ends of a platinum wire, about two feet long and one twentieth of an inch thick, were fastened to the other end. The silk thread was drawn through the nose, and, by manipulating the wire loop in the mouth, it was placed as high as possible on the pedicle of the tumour. The ends of the wire were then placed in connection with the battery (Grenet's); the circuit was kept closed for twenty seconds, traction at the same time being made on the wire. The current was now interrupted, and the loop, which had cut into the tumour, was placed more accurately on the pedicle. The circuit was again completed, and the tumour was cut through at its base and removed through the mouth by means of the fingers. It measured nearly two inches longitudinally and an inch and a half transversely. The patient felt no sensation of heat during the operation; it was not followed by pain, hæmorrhage, or any discharge.

Nasal polypus.—Dr. Lichtenberg records a case of fibrous polypus, high up in the nose, which he removed, from the outside, by making a flap and sawing through the nasal process of the superior, maxillary bone, &c. A detailed description and a figure of the operation are given. ('Lancet,' Nov. 30, 1872.)

Naso-pharyngeal polypus; extraction through the anterior nares; brain symptoms; death.—Mr. Forster, 'Clin. Soc. Trans.,' iv, 159.

Removal of bronchocele.—Dr. Greene has removed large bronchoceles, successfully, in three instances. The first patient was a woman, æt. 45. The bronchocele was very large (a sketch from a photograph is given). A fatal result was anticipated, quickly, if nothing were done, and the patient was anxious for an operation. A long incision was made through the skin, and the fascia divided on a director. Several veins were wounded in dividing the fascia immediately investing the tumour. Their walls were so thin no ligature would hold. He only used his fingers in cleaning the surface of the tumour and separating it from surrounding structures, but the hæmorrhage was fearful. He soon reached the pedicle, which contained three, large arteries whose pulsations were very distinct and which served as guides for dividing the pedicle into three parts, which was accomplished with the fingers. Each part was tied separately; adhesions to the sheath of the carotid vessels were found at one place, and their division was followed by copious, venous hæmorrhage. This came from the internal jugular, which was tied. The patient recovered well. The second patient was forty years of age. The tumour was connected with the œsophagus. There was not so much hæmorrhage as in the former case. Two vessels were found at the base; a blunt needle was passed between these and the pedicle tied in two halves. She recovered well. The third patient was thirty-five years of age. The growth was very large, and the surface of it pulsated everywhere. The [illegible] very alarming. The base

was reached as quickly as possible, regardless of the bleeding, and tied in two halves. The inferior thyroid, of the left side, is mentioned as of the size of the common carotid in its normal condition. The patient did well. Dr. Greene says these are the only cases he has attacked, and though they turned out so successfully he is not anxious to deal with another; at the same time he would not hesitate in a similar case, as the possibility of extirpation, even in the worst cases, is established. The several steps in the operation are—(1) exposure of the tumour by linear incision of ample length, avoiding most sedulously any wounding of the tumour or of its fascia propria; (2) division of the fascia propria upon a director; (3) the reflection and the enucleation of the tumour with *the fingers and the handle of the scalpel*, paying no attention to hæmorrhage, however profuse, but going as rapidly as possible to the base of the gland and compressing the thyroid arteries; (4) transfixion of the pedicle, from below upwards, with a *blunt*, curved needle, armed with a double ligature, and tying each half; or, when practicable, dividing the pedicle into as many portions as there are main arterial trunks, and tying each portion separately; (5) excision of the gland and subsequent dressing of the wound as in ordinary cases. "It is and always will be exceedingly rare that any such interference is warrantable; *never* for relief of deformity or discomfort merely, *only* to save life." "If it is beyond all question determined, in any given case, that such an operation gives the only chance for snatching a fellow-being from an untimely grave, be it remembered that accurate, anatomical knowledge and a perfect self-control, under the most trying ordeals through which a surgeon can pass, are indispensable to its best performance." ('Am. Jour. 'Med. Sciences,' Jan. 1871, 80.)

Dr. Morell Mackenzie writes on *the treatment of bronchocele* ('Lancet,' May 4, 1872). In "simple or adenoid bronchocele" he uses iodine, blisters, iron, &c. For the "fibrous" he employs a seton passed through the substance of the gland. The seton should be of twine (six to twelve threads, according to the size of the tumour). In "cystic bronchocele" he uses injections of perchloride of iron. The cyst should first be emptied and then a solution of perchloride of iron (two drachms of the salt to an ounce of water) is injected through the canula, which is then plugged and fastened in. The injection is repeated every two or three days till suppuration is established. The tube is then withdrawn and poultices are employed. Figures of patients before and after operation are given. Other varieties of the disease are considered.

Congenital, cystic tumour of the neck successfully extirpated.—Dr. Hardie records the case of a baby, æt. 5 months, who had a congenital cystic and solid tumour of the neck. After various methods of treatment had been tried, as the child seemed likely to die if nothing further was done, an operation was performed. Hæmorrhage was checked as he proceeded. The baby on several occasions seemed nearly dead. Both sterno-mastoids were divided. The operation took an hour and five minutes. The child recovered perfectly and remained well. ('Lancet,' Nov. 9, 1872, 667.)

Removal of a cystic tumour of the neck.—Dr. Walter F. Atlee removed a cyst, of the size of a goose-egg, from the neck of a young man. Various

attempts had been made to procure contraction of the cyst without avail. The patient recovered. "The chief interest, in this case, is derived from the fact that it appears to show, that encysted tumours of the neck may have their origin in certain changes taking place in the lymphatic ganglia, as suggested by M. A. Richard ('Mémoires de la Soc. de Chirurgie,' iii). Another reason for calling attention to the case is the fact that English, surgical literature is most remarkably barren on the whole subject of tumours of the neck. In this respect Holmes's 'System of Surgery' is quite deficient." ('Am. Jour. Med. Sciences,' April, 1872, 411.) (The notice in Holmes's 'System' may not be in sufficiently large print or detail, but is hardly "quite deficient." See "Regional Surgery," v.)

Sanguineous tumour of the neck.—A case in which a sanguineous tumour of the side of the neck was tapped, then laid freely open and syringed out, daily, with Condy's fluid, is noted in the 'Lancet,' Sept. 30, 1871, 407. The patient was under the care of Mr. Savory. On the ninth day a sudden gush of blood occurred. It was stopped immediately and the common carotid artery ligatured, but the patient died. The external carotid artery had given way.

Removal of a tumour of the palate.—A young man, æt. 28, came under the care of Dr. King, of Hull, for a large tumour of the left side of the palate, which filled up nearly the whole of the arch of the fauces, the tonsil being tightly stretched over it. He had only been aware of it for three months, but when he discovered it, he said, it was of considerable size. The man's symptoms were urgent, and so he consented to the removal being attempted. A ligature was first of all passed round the left carotid so as to be ready for being tightened if necessary. An incision was then made from the angle of the mouth to the inferior maxilla, a little above the last molar tooth, and the ends of the facial artery tied. The last two molars of the upper jaw were extracted and the incision was carried back across the masseter to the posterior edge of the inferior maxilla. Some difficulty was then experienced owing to the tumour falling back on the glottis. It was held up, however, and the ramus of the lower jaw divided about an inch above the angle and the lower portion forcibly drawn down. Room was thus obtained to deal with the tumour. An incision was made to the right of the uvula, and the soft palate detached from the hard palate: two incisions were made through the mucous membrane, one behind, the other in front, enclosing the tonsil between them, and the fingers thrust forcibly behind the tumour. The latter could now be drawn out between the divided portions of the lower jaw. On making a final incision to remove the tumour a terrific gush of blood occurred. The ligature on the carotid was tied and the hæmorrhage ceased. An artery on the right side of the palate required a ligature. The tumour was found to be of a fibrous character. Dr. King thought that the [illegible] proceeded from vessels supplying a rapidly growing tumour, and that no artery of any size had been divided. He considered the preliminary ligature of the carotid unnecessary and should not again practise it. The chief danger was from suffocation. The man did well after the operation, as far as its immediate dangers were

concerned, but succumbed to an attack of erysipelas six days later. The power of swallowing was restored, the wound in the face had all but healed; the division of the inferior maxilla could not be looked on as hazardous; no secondary hæmorrhage had occurred; from the time of leaving the operating table till his death he did not lose one drop of blood. ('Lancet,' Feb. 25, 1871, 204.)

Removal of pterygo-maxillary tumours by the mouth.—A man, æt. 21, was admitted into the Liverpool Royal Infirmary, May, 1871, under the care of Mr. Bickersteth, for a tumour of the left side of the palate. Eighteen months, previously, his attention was drawn to a slight swelling over the left parotid region, which kept slowly increasing in size, but did not cause him any pain or inconvenience. Probably the tumour had existed much longer. There was considerable enlargement in the left parotid region, which evidently pushed the parotid outwards. The left, ascending ramus of the lower jaw was so pushed outwards that its condyle was seen and felt to project beneath the skin outside the back of the zygomatic arch, while the right was at least half an inch deeper than this process. On examination from within the mouth, a firm, dense tumour was found springing from the left pterygo-maxillary region, and pushing the lateral wall of the pharynx inwards. The tonsil was thrust inwards and downwards, and the uvula rested against the anterior pillar of the opposite side. The boundaries of the mass were well defined except externally. When pressure was made externally, the tumour was plainly pushed inwards. There was clearly no attachment to the bone. It was evident the tumour could not be attacked externally without division of the lower jaw and extensive mutilation of the soft parts. On the other hand, to attempt extirpation from within the mouth appeared hazardous and the result doubtful, both on account of the size of the mass and the risk of wounding any large vessels. Nevertheless, relying on the mobility of the tumour and the certainty that it was enclosed in a distinct capsule, Mr. Bickersteth attempted the latter plan. Chloroform was not given. Firm pressure was made by an assistant. A direct incision was then made from behind the left, posterior pillar of the fauces forwards and upwards, through the structures of the soft palate, as far as its junction with the hard palate. This incision, which at once exposed and opened the capsule of the tumour to an extent of not less than two inches, was crossed by another at right angles. With the handle of the scalpel the flaps were now pushed back and reflected so as fully to expose the whole of the portion of the tumour which projected into the mouth. This was seized with forceps. The growth was of so friable a nature, however, that it crumbled under pressure. Reliance was, therefore, placed solely on the use of the forefinger aided by pressure from the exterior. By a little perseverance the whole was turned out after some difficulty. Not more than a drachm or two of blood was lost, and no vessel required ligature. On putting the finger into the chasm from which the tumour had been extracted, it was found to pass behind the articulation of the jaw, and there appeared to be nothing, except the skin and fascia, between it and the exterior. The great arteries of the neck and the styloid process and pterygoid plates were easily felt, the

latter being laid bare but not denuded of periosteum. The patient was discharged, cured, in eight days. The tumour was about three and a half inches in its longest diameter, and weighed between three and a half and four ounces. It was enveloped in a distinct, investing capsule, and microscopic examination showed that it was mainly composed of very perfect cartilage with a good deal of fibrous tissue intermixed. Figures of the man's condition before and after operation, and of the tumour, are given. ('Lancet,' July 29, 1871, 156.) In the number for August 5, 186, Mr. Bickersteth remarks on the cases of Dr. King and Dr. Watson,* and observes—"When it is remembered that all innocent tumours, properly so called, are enclosed in a complete and distinct investing capsule, which is separated from the surrounding parts by a simple layer of condensed, cellular tissue, surrounding the capsule proper, it appears to be often unnecessary, in order to remove them, to do more than make an aperture large enough to admit of their passage externally, and then they are capable of being easily shelled out, by the aid of the finger or some blunt instrument, with much better precision and much less risk, than by the most elaborately conducted dissection. This observation is specially appropriate with regard to tumours occupying the position we are now considering." "The deep and almost inaccessible position of such growths secures them from the accidental agencies liable to excite inflammation and consequent adhesions in tumours situated more superficially. If it is clearly ascertained that they admit of as much movement as the confined space in which they are lodged permits, I believe they may generally be easily and safely removed by the method I have described, and without any external excision or any elaborate dissection." In Oct. 1864 a woman, æt. 35, was admitted suffering from great difficulty in swallowing and from occasional attacks of dyspnœa, caused by a growth of firm, fibrous consistence on the right side of the pharynx. The tumour bulged over to the left side, but did not project externally as the former one did. The tonsil was stretched over it, but could be moved on it and was not adherent to it. In every direction, except below, its limits could be defined, but it passed downwards into the lower part of the pharynx beyond the utmost reach of the finger. The tumour had been observed for some years, but had latterly increased rapidly, and the unfortunate woman was emaciated by starvation and in imminent danger of suffocation. Incisions were made similar to those described above, the flaps separated and turned up, and the tumour seized with vulsellum forceps. By the aid of the finger the whole growth was very quickly enucleated. It proved to be of the size of a moderately sized, ripe fig and of purely fibrous structure. The patient left, in ten days, cured.

Removal of an exostosis from the first rib.—The patient, a female, æt. 20, was under the care of Mr. Birkett. She had noticed a swelling on the side of her neck for four months. There was a hard swelling felt, deeply placed, on the left side of the neck, close to the main artery, and with the cords of nerves going to the brachial plexus passing over it, so that they could be felt rolling over the tumour. The external jugular vein coursed along the anterior margin, and the incision was

* See 'Retrospect,' 1869-70, 308.

made behind the growth, parallel to the vein. As little use was made of the knife as possible when once the superficial incisions had laid bare the nervous cords. The carotid artery was found to lie in a groove on the anterior surface of the tumour, and had to be cautiously moved aside. The tumour could be felt to spring from the surface of the first rib, close to the margin of the scalenus. It was removed in two pieces. Mr. Birkett remarked that the rough surface would soon be smoothed down. He had never known a growth of this sort to recur. The growth itself seemed of ordinary, cancellous bone, with a thin layer of investing cartilage. ('Med. Times and Gaz.,' May 27, 1871, 602.)

Enchondroma of the ribs; operation; death.—Dr. Menzel relates ('Wien. Med. Wochensch.,' No. 15, 1871) the case of a man, æt. 36, who was admitted into the hospital in Vienna, under Dr. Billroth, in October, 1870, on account of a tumour under the right clavicle, which he had first noticed in the preceding January. It was five inches by four in diameter, and reached from the lower border of the clavicle to the third rib, and from the sternum beyond the line of the nipple. Its surface was smooth, and it was firm and hard. The skin was not affected. The tumour was immovable on the ribs, and was covered by the pectoral muscle. It did not pulsate, nor could any bruit be heard in it. There was no displacement of the heart nor any sign of disorder of the circulatory or respiratory organs. With regard to the question of operation, it was considered, on the one hand, that if the tumour were left it might endanger the patient's life by outward growth and consequent ulceration and sloughing, or even by inward growth and compression of the lungs and large vessels; while, on the other hand, its removal might be attended with danger from opening the cavity of the pleura. It was accordingly determined to cut down the tumour to the level of the chest-wall, and this was accordingly done on October 27. The wound was dressed with carbolic acid. On the third day the patient became very feverish (temperature 104° Fahr.), and stated that on deep expiration fluid escaped from the wound. On examination it was found that the remaining portion of the enchondroma had sloughed away, leaving an opening through which an india-rubber catheter could be passed downwards as far as the lower part of the upper lobe of the lung. Adhesions had formed round part of the opening. The pleura was syringed every two hours, first with warm water, and then with solution of hypermanganate of potash (five grains to the pint). From Nov. 2 to 9 the patient went on well; but the perforation had been enlarged, partly spontaneously and partly by the removal of necrosed portions of the second and third ribs. On Nov. 9 dulness on percussion was noticed at the lower part of the right side of the chest, and rapidly increased upwards. On account of the increasing difficulty of breathing, paracentesis, by means of Dieulafoy's aspirator, was performed between the eighth and ninth ribs, and 1400 cubic centimètres of yellowish-green serum were removed. The patient was relieved for three days, but the effusion then recurred, and was again removed to the amount of 1350 cubic centimètres; it was now found to contain pus. After the second operation there was relief for a time, but the patient was attacked with bronchial catarrh and cough, during the

paroxysms of which the lung became torn by the edges of the ribs, giving rise to slight hæmorrhage into the thorax. Death took place on November 30. On post-mortem examination there were found to be extensive adhesions of the whole upper part of the right lung with purulent exudation below. The mediastinum contained some enchondromatous masses having a gelatinous appearance.

Removal of tumours from bone.—Sir James Paget is convinced that the operation of simply removing a tumour from the place in which it lies is as sufficient for the cure of one growing in a bone, as for that of one growing in connective tissue, and that the instances are very few in which it is right to disturb the continuity of a bone in order to remove from it any innocent tumour. He selects the following cases:—1. He removed a cartilaginous tumour from the head of the tibia of a lad, æt. 16. He reflected a semilunar flap and gouged. 2. He removed a similar tumour from the lower jaw of a lady, æt. 45. 3. He removed a cartilaginous tumour from the radius of a woman, æt. 40. 4. He removed a fibrous tumour from the walls of the antrum. 5. Mr. Wrench removed a myeloid, pulsating tumour from the end of the radius of a woman, æt. 43. 6. He enucleated a bony tumour from the angle of the lower jaw of a patient, æt. 15½. The tumour should be freely exposed, and then turned out with the finger or the gouge. For help to the diagnosis of fitting cases he suggests—1. The tumour is probably cancerous if its growth commenced before puberty or after middle age, unless it be a cartilaginous or bony tumour, on a finger or toe or near an articulation. 2. If a tumour has existed on or in a bone for two or more years, and is still of doubtful nature, it is probably not cancerous or recurrent, and this probability increases with the increasing duration of the tumour. 3. If the tumour on or in a bone has doubled or more than doubled its size in six months, and is not inflamed, it is probably cancerous or recurrent, and this probability is increased if, among the usual coincidences of rapid growth, the veins over the tumour have much enlarged, or the tumour have protruded far through ulcerated openings, and bleeds and profusely discharges ichor. 4. If with any such tumour, not being inflamed, the lymph-glands near it are enlarged, it is probably cancerous, and still more probably if the patient have lost weight and strength to amounts more than proportionate to the damage of health by pain or fever or other accident of the tumour. 5. A tumour on the shaft of any bone but a phalanx is rarely innocent, and so are any but cartilaginous outgrowths on the pelvis, or any but the hard bony tumours on the bones of the skull. If on the concurrence of these characters or on other grounds it is in any case concluded that a tumour connected with a bone is not cancerous or recurrent, the question whether it is growing on or in the bone may be made probable by attending to the following points:—When the wall of the bone can be traced over the surface or any part of the surface of the tumour, its growth from within is nearly certain, and so it is when, on the surface of the tumour, portions of bone can be felt among portions of more yielding substance. General smoothness of surface is usually significant of a tumour growing within a bone and expanding it, unless in the case of cartilaginous tumours, which, after growing within bones, have pro-

truded through some of their expanded walls. Pulsation in a non-cancerous tumour connected with bone is a nearly certain sign of growth within bone, except in the case of certain specimens of myeloid epulis, and when such pulsation is felt it is no indication that severe bleeding will ensue in the removal of the tumour, for it is only derived from the arteries in the walls of the bone-cavity lodging the tumour. When these means of diagnosis are insufficient an exploratory puncture or incision may be made; and generally in cases of doubt it may be well to attempt the simple removal of the tumour, and in case of failure to proceed at once to its excision, or to resection, or to amputation. ('Med.-Chir. Trans.,' liv, 253.)

On deeply seated atheromatous tumours of the neck.—Dr. Max Schede, in the 'Archiv für Klin. Chir.,' xv, relates three cases in which the tumour lay on the sheath of the large vessels; in one it was attached to the styloid process. In two of the cases, the inner wall of the sac was formed of cells arranged in from six to ten layers, superficially, resembling large, flattened epithelium, and, in the more deeply seated parts, becoming gradually elongated into spindle-cells standing perpendicularly on the cyst-wall. Outside the cellular layer was a sac of connective tissue, the inner part of which consisted of close, concentric layers of fine, fibrillar tissue, interspersed with a homogeneous, finely granular substance. Further outwards, loose connective tissue was met with. There were no traces of glands or of hair-follicles. In a third case iodine had been injected before the removal of the cyst. The epithelial cells here showed pale nuclei, and the capsule of connective tissue presented signs of inflammatory infiltration, and contained a large amount of young tissue. On the outer part, the capsule presented the structure of a lymphatic gland; this appearance was found, on close examination, to be due to the incorporation of lymphatic glands with the wall of the sac. Schede believes that these cysts have their origin in branchial fistulæ. In one of the cases the patient's twin-sister had persistence of branchial clefts. The extirpation of such cysts is attended with difficulty; puncture, followed by injection of iodine, is more likely to be useful.

Congenital, fibro-cellular tumour in the buttock.—Mr. Bryant removed a tumour of this nature from the buttock of a man, æt. 50. He had always had it, he said, but it had only caused inconvenience for two or three years, and been really troublesome for two months. ('Lancet,' Sept. 30, 1871, p. 468.)

Congenital fibrous tumour.—Mr. Waren Tay removed a tumour (probably congenital) from a child's arm, close to the axilla. The growth seemed to be of the simplest character, hypertrophy of the connective-tissue elements of the subcutaneous fatty layers, and to be allied to the solid portions of the cystic tumours of the neck and other parts; of the nature of Mr. Holmes's "Congenital Innocent Tumour or Hypertrophy." ('Path. Trans.,' xxiii, 250.)

Removal of a large, scrotal tumour.—Mr. Bickersteth narrates a very interesting case of a large, scrotal tumour which he removed, saving the testes. The mass was, chiefly, hypertrophied, scrotal skin and subcutaneous tissue. Embedded in this was the original growth (which

had been said to slip up and down), about the size of a 32-lb. shot, enclosed in a firm capsule. It was fibro-cartilaginous in structure. From its upper part a firm band had passed upwards. This was met with in the operation as a pedicle of the thickness of the thumb, and tied before being cut. The man recovered. He was a tailor, and had noticed the tumour about seventeen years. A figure of the enormous tumour is given. ('Lancet,' Aug. 5, 1871, 187.)

Medullary carcinoma in the axilla.—Mr. Durham removed an encephaloid tumour of the armpit from a man æt. 48. The tumour had been growing about five months, and was secondary to a small growth in a mole above the elbow. ('Med. Times and Gaz.,' Aug. 12, 1871, 189.)

Osteoid cancer. An interesting but somewhat obscure case of osteoid cancer of the ulna, &c., is detailed by Dr. Joseph Bell. ('Edin. Med. Journ.,' May, 1871, 1006.)

Multiple lymphoma treated by arsenic.—Billroth describes in the 'Wiener Medezin. Wochenschr.,' No. 44, 1871, the case of a woman who was affected with universal hyperplasia of the lymphatic glands. On each side of the neck was a tumour as large as a fist, and in the fauces lay one (proceeding from the tonsils) as large as a hen's egg. As this produced dyspnœa, it was removed by the galvanic cautery. There were also tumours, as large as apples, in the axillæ and groins, and as large as hens' eggs in the bend of the elbow. The mesenteric glands were felt to be enlarged, and the spleen was double its normal size. There was no leukæmia. Recovery took place in four weeks under the use of Fowler's solution. In such cases, Billroth remarks, subcutaneous injection and electrolysis have not been found to have any effect in reducing the size of the tumour.

Écrasement cancreux. Dr Nott describes and figures a rectilinear écraseur. It may be compared to a pair of scissors. The blades short, strong and serrated to crush—and the handles long, strong, and provided with a screw, by means of which the crushing power is exerted. In treating external hæmorrhoids the pile is crushed and then cut off. In internal piles the écraseur is applied, removed, and then a ligature is tied in the groove formed by the crusher for safety. The crusher may be used in any case in which an écraseur is deemed advisable. The tissues are squeezed together and then a [illegible] in front of the écraseur, or after this is taken off, [illegible] In amputation of the penis no [illegible] He removed a [illegible] The end soon healed over.

[illegible] —In a paper on this [illegible] and [illegible] Dr Heine [illegible] Thiersch [illegible] as a [illegible] We believe [illegible] to be [illegible] to the [illegible] Again the

cases, in which the treatment has been tried, have been those in which operation appeared unadvisable, and in which, therefore, no convincing result could be expected. In primary cancer, the treatment ought to be tried at the earliest stage of the disease. In his paper, Heine referred to cases in which, after the injection of a watery solution of carbolic acid, cancer of the parotid and indurated syphilitic ulcers and papulæ were said to have been reduced. In his experiments on cancer he modified the operation by injecting the fluid chiefly into the periphery, so as to act on the youngest proliferating cells, to bring their growth to a standstill, and to prevent the escape of the cancerous elements into the neighbouring lymphatic glands. A woman, æt. 48, the mother of three children, had had a tumour of the right breast for a year, and one of the left for six months. Their external appearance and an examination of excised portions showed them to be carcinomatous. From the left breast an indurated cord of lymphatics led to an enlarged axillary gland of the size of a chestnut, and in the neighbourhood of the same breast several small, hard nodules were embedded in the skin. A solution of chloride of zinc (0·5 to 1 per cent.) was injected in the neighbourhood of the breast several times (the quantity used being from five to seven charges of Pravaz's syringe), but produced only severe pain, without any effect on the size of the tumour. On October 31 Dr. Heine began to inject a solution of 1 per cent. of hydrochloric acid in quantities represented by from two to five charges of Pravaz's syringe, at intervals of twelve or fourteen days, the injections being made between the breast and the axilla. At the end of eight months a notable reduction in the size of the tumours was observed. The enlargement of the axillary glands and the indurated, lymphatic cord disappeared in a month from the commencement of the injection. One gland, only, was removed for the purpose of microscopic examination, and showed that the cancer-cell masses were broken down into a homogeneous, finely granular material. The pain produced by the injection was slight. After the third injection fever set in and lasted three months; in Heine's opinion it could be only regarded as an absorption-fever. It was treated with quinine, and with carbolic acid in eight-grain doses in pills, with the effect, only, of temporarily reducing the temperature about 3½° Fahr. The number of white corpuscles in the blood was increased. At the end of the treatment, the reduction had amounted to 4¾ centimètres, transversely, and 4½, vertically, in the left breast; in the right, to 5 centimètres transversely, and only 1½ vertically. On one occasion, when the injection was omitted for a time, the right breast increased in size. At the end of the eighth month the woman was in good health, the fever having for some time left her. In two other cases, one of ulcerated mammary cancer in a woman and one of secondary ulcerated cancer of the inguinal region in a male, injection of hydrochloric acid produced febrile symptoms, molecular melting down of the tumour, and partial shrinking. In two instances, Dr. Heine endeavoured to reduce hypertrophy of the prostate by injecting solution of iodine, made by mixing 60 parts of tincture of iodine* and 8 parts of iodide of potassium in

* As Dr. Heine practises at Innspruck, he probably refers to the Austrian tincture,

180 parts of water. The fluid was thrown in *per rectum* by means of Pravaz's syringe. The first patient died a fortnight after the treatment was commenced, of old-standing cystitis and pericystitis, with pulmonary œdema. The injection did not appear to have had any effect on the prostate. In the second case the solution used for injection consisted of 60 parts of iodine and 4 of iodide of potassium in 102 of water. It produced prostatic abscess, which spread into the rectum, and the patient had epididymitis for some days. The lobe of the prostate, which was enlarged to the size of a walnut, was entirely reduced in size. In the discussion which followed the reading of Dr. Heine's paper (see 'Berliner Med. Wochenschr.,' July 8, 1872) Dr. Billroth said that he had tried parenchymatous injections in the treatment of tumours, but the result had been negative, and he for some months desisted from their use. Having heard, however, of the injection of bronchocele and lymphoma with tincture of iodine by Lücke, of Bern, and of the observations made by R. Demene, of Bern, he determined to give the plan another trial. His late assistant, Dr. Czerny, made a number of experiments on the injection, in cases of strumous enlargements, tumours of the lymphatic glands, and cancer, of solutions of nitrate of silver, chloride of gold, perchloride of iron, carbolic acid, gastric juice, &c. The result, sometimes, was the formation of a small abscess, which left a little scar, but had no influence on the growth of the tumours. In some instances, the result was a rapid increase of the tumour, and, in others, no result at all was obtained. Billroth also related a case in which a single injection of alcohol in a case of strumous disease of the lymphatic glands was followed by sloughing and death.

Supra-sternal luxation of the clavicle.—Prof. R. W. Smith records the following case, accompanied by two illustrations. A man, æt. 60, fell down from and was run over by a vehicle he was driving. He was found to have sustained a compound luxation of the astragalus of the right foot outwards. The bone was easily replaced. The sternal end of the left clavicle was dislocated. The shoulder had fallen in, towards the mesial line, so far that the end of the clavicle was pressing strongly on the trachea, causing a very great amount of dyspnœa. It formed a very striking projection in front of the trachea, giving to the sternal portion of the mastoid muscle an arched line: it was a complete luxation. In a sitting position the dyspnœa and dysphagia were extreme. When the man was placed in a recumbent position the bone no longer projected, but it still remained above its proper level. The man died on the eleventh day. When the integuments were removed from the sternal region, the end of the left clavicle was seen lying above the sternum, beyond the centre of which it had so far passed as to be in contact with the inner edge of the right sterno-mastoid muscle. The sternal portion of its own muscle crossed in front of it at some distance external to its articular surface, was stretched forwards and in a state of tension, while the clavicular portion was relaxed. Posteriorly, the bone rested on the sterno-hyoid muscles and the front of the trachea. The

which, according to Squire, contains one part of iodine in seventeen of rectified spirit.

anterior and posterior ligaments of the joint were, of course, ruptured, as were, likewise, the inter-clavicular and rhomboid ligaments. The inter-articular cartilage was torn from its attachment to the sternum and cartilage of the first rib, and was carried upwards and inwards along with the clavicle. The only deviation from its normal state observable in the subclavius muscle was that it appeared relaxed and altered in direction. Dr. Stokes then gives an account of seven other cases already published, and remarks—"It will be seen from the preceding *résumé*, that the archives of surgical science, previous to the publication of the present case, contained only seven examples of the injury under consideration. The case I have described constitutes the eighth, and is peculiarly valuable as being the first (as far as I am aware) in which the anatomical characters of the injury were accurately established by *post-mortem* examination, for the account given by Du Verney is totally destitute of value as a dissection of the injury. It is a luxation of necessarily rare occurrence, for it not only requires for its production that the force applied should be very great, but that it should also act on the shoulder in an unusual direction, viz. downwards, inwards, and probably backwards. The result of this threefold impulsion is that the clavicle, converted into a lever of the first order (the fulcrum of which is constituted by the first rib) is forced, at its sternal extremity, upwards and inwards." ('Dub. Journ. Med. Sci.,' Dec. 1872, 450.)

Dislocation of both ends of the clavicle.—Dr. Stanley Haynes records the case of a girl, æt. 13. Spontaneous dislocation forwards of the sternal end of the clavicle and partial luxation upwards of the acromion one occurred while she was washing the back of her neck one morning. The bone could easily be replaced, but it was difficult to retain it in place. In a note Mr. Erichsen states there are three cases on record, two recorded in his own work, and one by Mr. Hamilton. ('Brit. Med. Journ.,' Jan. 27, 1872.)

Paralysis of the arm after dislocation of the shoulder-joint.—Dr. Bernhard relates in the 'Berliner Klin. Wochenschr.,' No. 5, 1871, two cases in which dislocation of the head of the humerus was followed by paralysis. In one of the cases reduction was effected eight days after the injury, in the other the dislocation was reduced on the day of its occurrence. In the first case there was slight power of extension of the wrist, and the supinator longus became very distinct in the attempt to bend the arm; sensibility was increased in some parts, but was diminished somewhat in the forearm. In the second case the forearm could be bent on the arm and the head could be moved slightly, while voluntary power over the muscles of the shoulder was completely lost. Sensibility was impaired over the three outer, metacarpal bones and fingers. The electric irritability of the muscles had almost entirely disappeared and was repaired in but a very slight degree at the end of more than four weeks, although the voluntary power over the muscles had become increased.

Reduction of an old dislocation at the shoulder.—Mr. Callender records a case in which he reduced a dislocation of the humerus, of one month's standing, under choloform. After rotating the head of the bone so as to break down adhesions, the arm (the right) was forcibly drawn

upwards, across the sternum, the elbow being raised almost to the level of the axilla. In this way the head of the bone was depressed, the trunk being fixed, the arm was then forced outwards by pushing against the elbow, the forearm being flexed and at the same time movements of rotation were made, the arm being occasionally lowered from the level of the axilla. Reduction was soon effected. The manœuvre consisted in raising the elbow across the chest, forcing the raised arm outwards, rotating the arm in so doing, and, lastly, whilst still rotating, somewhat depressing it. Practically this plan avoids all risks of injuring the great vessels. ('Clin. Soc. Trans.,' iv, 196. See also previous 'Bien. Retrospects.')

Extravasation of blood after the reduction of a dislocation of the shoulder.—Mr. C. De Morgan records the case of a man, æt. 54, who came under care a fortnight after the reduction of a dislocation of the shoulder under chloroform and with the heel in the axilla. Extravasation of blood occurred and increased. The man's strength failed and he had rigors. Mr. De Morgan laid open the swelling and turned out clots, &c. The man gradually sank. At the post-mortem it was impossible to detect the source of the hæmorrhage. (Clinical lecture, 'Brit. Med. Journ.,' Jan. 6, 1872.) Mr. Rivington records the case of a man, æt. 71, who died in consequence of hæmorrhage from a traumatic, axillary aneurism, resulting from the reduction of a dislocation of the humerus. ('Brit. Med. Journ.,' April 20, 1872.) In the 'Brit. Med. Journ.,' May 18, 1872, is recorded the case of a man, æt. 38, who dislocated his humerus and had it reduced. He was then admitted into the Northampton Infirmary. Gangrene of the arm ensued and the man died. Fracture of the coracoid process, chipping of the head of the humerus, and rupture of the axillary artery, were found.

Dislocation of the wrist.—A case has been under the care of Mr. Erichsen. The accident had occurred long before. The carpus was displaced on to the palmar aspect of the bones of the forearm and to the ulnar side, and the trapezium could be distinctly felt in front of and to the ulnar side of the end of the radius. After manipulation the position of the parts was much improved. ('Med. Times and Gaz.,' Oct. 14, 1871, 470.)

Congenital dislocation of the wrist.—Specimen from an old woman brought to the dissecting-room. (Mr. James Adams, 'Path. Trans.,' xxii, 197.)

Complete, simple, anterior luxation of the semilunar bone.—Dr. Chisolm narrates the following case. A sailor, æt. 25, fell from the yard-arm on to the deck, a distance of about twenty-five feet. He fell on the right side with his right hand doubled under him. Ten days later he came under Dr. Chisolm's care. There was comparatively little swelling. The axis of the hand was perfectly in a line with that of both radius and ulna. A large, hard, rounded, subcutaneous prominence existed on the front of the wrist, directly over the site of the semilunar bone. This was so firmly fixed as to exhibit not the slightest motion when manipulated with force. The point of a couching needle thrust, to the depth of an inch, into the back of the wrist showed, by the freedom of its

movement in every direction, that a vacant cavity existed where, normally, the compact semilunar bone is found. The constant pressure kept up by the luxated bone caused forced and painful flexion of the fingers and wrist. All attempts at reduction were useless. Three weeks after the injury Dr. Chisolm removed the bone through a single incision, two inches in length, in the median line. The operation was more tedious than was expected. The bone was rotated so that the concavity for the reception of the rounded head of the os magnum looked directly up the arm, whilst the convex surface belonging to the radio-carpal joint was facing the fingers. All the ligaments were not torn through, but the bone was forced amongst them, twisted and stretched over it so that it was tied down firmly in its new position. Its reduction would have been quite impossible, owing to the irregular surfaces of bone in contact. A small fragment of the scaphoid was found attached to the semilunar, torn off at the time of the injury. ('Lancet,' Oct. 28, 1871, 605.)

Dislocation of the bones of the pelvis.—Dr. Salleron contributes an elaborate memoir on the subject to the 'Archives Générales de Médecine, for July and August, 1872. During a period of forty years, there have come under his notice, in the military hospitals, more than thirty cases of severe injury of the pelvis, most of them being instances of fracture with dislocation, often complicated with other severe injuries, and rapidly fatal. In three cases, there was simple dislocation without fracture. In one of these, a man, æt. 26, fell from a height of twelve mètres, and dislocated the left iliac bone, upwards and backwards; the second piece of the sternum was also dislocated upwards and forwards, on the first. Reduction was readily effected by fixing the pelvis, applying steady extension, by a towel placed round the thigh, and pushing the posterior, superior, iliac spine downwards and forwards. Attempts were made to reduce the dislocation of the sternum, but without effect. The patient left the hospital, able to walk without crutches, about seven weeks after the receipt of the injury. In another case, a Zouave, æt. 36, dislocated the right iliac bone forwards and slightly upwards, by a fall from a height of five or six mètres. On placing him on his back, the right antero-superior spine of the ilium was seen to be ten or twelve millimètres higher than the left, and the right pubic bone projected forward, beyond that of the other side. The crista ilii was nearer to the false ribs on the right side than on the left. There was no impairment of the movements of the hip-joint. On turning over the patient, in order to make a further examination, Dr. Salleron felt a sudden movement, accompanied by a sound which was heard by the bystanders. The patient at once felt relieved, and the manipulation of the pelvis became less painful than it had been. On again placing him on his back, the projection forwards of the right antero-superior iliac spine had nearly disappeared, and the right pubic prominence quite so. The patient was discharged, convalescent, nearly seven weeks after the accident. In a third case, a man, æt. 28, was injured by a mass of lime-stones falling on him, from a height of four or five mètres. The left iliac bone was dislocated forwards. The signs of the injury were distinct, although less marked than in the case just related, and the patient was unable to lie on his back without pain. As

the patient was in a state of nervous excitement, and the displacement was not very strongly marked, Dr. Salleron deferred any attempt at reduction. On the fifth day, while the patient was turning himself in bed, he felt a sudden shock in the pelvis, accompanied with a noise which his neighbour (no doubt with exaggeration) described as being as loud as a pistol-shot, but which was distinctly heard by a man in the third bed from the patient. Immediately after this he was able to lie comfortably on his back. When he went out of hospital, three months after the receipt of the injury, he could walk tolerably well, but the right thigh was somewhat atrophied. Its condition had improved, somewhat, when he was seen twenty days afterwards. In a subsequent portion of his memoir Dr. Salleron treats, at length, of the pathology, symptoms, diagnosis, prognosis, and treatment of dislocations of the pelvis. *Pathology.*—In disjunction of the pubic symphysis, the interarticular cartilage is not (except, perhaps, in exceedingly rare cases) torn through its central part, but is separated from the bone on one or the other side. This has been noticed by Malgaigne, Backer, and Cloquet, as well as by Dr. Salleron. The fibrous ligaments surrounding the symphysis are more or less torn. The inferior ligament is generally detached from the interarticular fibro-cartilage, and torn away from its attachment to the descending ramus of the pubic bone that is detached. Its lower edge seems to be usually uninjured, but its upper border is irregularly torn to a greater or less extent, especially at the sides, where it is attached to the bone. Lacerations of the perinæum and rupture of the urethra or of the bladder, although produced simultaneously with the dislocation, are not produced by it. Rupture of the bladder generally arises from direct pressure. The wound in this case is linear, and has well-defined edges, while in perforation of the bladder by fragments (which, in rare cases, takes place in cases of dislocation complicated with fracture) the edges of the wound are irregular. Retention of urine or dysuria may occur in consequence of the deviation of the prostatic portion of the urethra to one or the other side. The precise mechanism of this displacement requires to be explained by post-mortem examination; but Dr. Salleron believes that it arises from the manner in which the pubo-prostatic ligament, on the side of the dislocation, is affected. When it is merely stretched, the prostate and the urethra with it are drawn towards the affected side; when it is torn through, the prostate and urethra are displaced towards the opposite side. This displacement of the prostate has been noticed in one case by Richerand, and in two by Dr. Salleron. In displacement of one of the pubic bones directly forwards, there is no injury of the triangular ligament and no deviation of the urethra from its course. Simple luxation of the sacro-iliac articulation may be partial or complete. In the partial form, the ligaments uniting the ilium to the sacrum are torn, while the ilio-lumbar ligament is only partially lacerated. The ilium becomes somewhat tilted, so that its upper portion is carried somewhat forwards, and its lower part correspondingly backwards. The tuberosity, which lies behind and a little below the posterior, superior, iliac spine, passes beyond the posterior edge of the articular surface of

the sacrum, and becomes entangled on it. If the ilium be thrown a little higher up, this tuberosity lodges in the digital fossa of the sacrum, and the displacement may now be regarded as complete. In both degrees of this dislocation, the ilium is rotated from within outwards and from before backwards, to a degree proportionate to the amount of the laceration of the soft parts; its posterior border thus approaches the middle line, while the internal, iliac fossa is turned more or less directly forwards, and the external one backwards. The ischiatic spine, in the first degree of this dislocation, is carried backwards and inwards towards the edge of the sacrum, and the tuberosity of the ischium approaches the coccyx. When the dislocation is complete, which rarely occurs, the upper half of the ilium is carried backwards and the lower forwards; the ischiatic spine and the tuber ischii pass considerably in front of the edges of the sacrum and coccyx. M. Salleron believes that the condition described by Key, in which the finger could be introduced into the space between the sacrum and ilium, must be of extremely rare occurrence, and must, if it occur, be attended with very great disturbance. In most cases the bones remain in contact. In the forms of dislocation of the ilium here described, the pubic bone of the affected side is carried outwards and a little forwards, never inwards. When the ilium is dislocated directly forwards, the upper half is tilted forwards and the lower backwards. In the less complete degree of this dislocation, the iliac tuberosity lies on the articular surface of the sacrum, but, in the more complete form, it is thrown on the anterior edge of the articulating surface. In the more simple forms of dislocation forwards or backwards, the soft parts are more or less lacerated, giving rise to extravasation of blood along the courses of the large vessels and nerves. In the second degree the large vessels and nerves, though stretched, may remain entire, but if the displacement be great they may be lacerated. *Causes and mechanism.*—Considerable violence is necessary to produce displacement of the pelvic bones, on account of the size and extent of the articulating surfaces, the strength and shortness of the ligaments, and the very limited amount of motion in the parts. To produce dislocation of the sacro-iliac joint upwards and backwards, the displacing force must act along an axis passing through the tuber ischii or the acetabulum, and ending in the centre of the sacro-iliac synchondrosis. In luxation of the ilium forwards, the traumatic cause must act along an axis passing through the posterior, superior, iliac spine and the centre of the sacro-iliac articulation. To produce dislocation of both iliac bones backwards, the force must act on the spinous processes of the sacrum, at the apex of an angle of which the sides pass forwards and outwards through the centre of the sacro-iliac articulation. Dislocation of the pelvic symphysis is produced by force acting on the tuberosities of the ischium or on the acetabula, so as to increase the distance between them. *Symptoms and diagnosis.*—Dislocation of the pubic symphysis is, when the displacement is considerable, attended with much pain in consequence of the rupture of the ligaments. The existence of the displacement can generally be recognised by digital examination. In luxation of the sacro-iliac articulation upwards and backwards, the antero-superior spine of the ilium is placed relatively higher and situated

further back than that of the other side. The crest of the ilium is nearer the false ribs than is normal; the postero-superior spine can be felt (if there be not too much contusion and ecchymosis) projecting more or less backwards, and lying nearer the middle line than that of the other side; the hollow of the sacrum is increased. The pubic bone on the side of the injury is raised above the other, and is carried more or less outwards and forwards, according to the extent of displacement and rotation of the ilium. The displacement outwards is the result of the approximation of the postero-superior iliac spine to the middle line. Tavignot has recorded a case where the pubic bone, of one side, was displaced in such a way as to ride over the other; Dr. Salleron, however, believes that there must be some error in the description, especially, from the ready recovery of the patient, there is no reason to suppose that there was also fracture. The leg of the affected side appears shortened, but it is only apparently so, and the measurements from the antero-superior, iliac spine to the malleolus are the same on both sides. In consequence of the rotation of the ilium, the foot is generally everted, sometimes to such an extent as to imitate fracture of the neck of the femur (as in cases described by Enaux and Gerdy). In luxation of the iliac bone forwards, the transverse diameter of the pelvis is increased, and the displaced bone forms a visible projection. The antero-superior, iliac spine is thrown forwards and, generally, a little downwards—sometimes, however, upwards. The postero-superior, iliac spine is depressed, and cannot, often, be readily felt; the sacral hollow is more or less obliterated. The limb nearly preserves its normal length and direction; the foot may be more or less inverted. The symphysis pubis is little, if at all, injured, but, sometimes, the sensibility of the part is very great. In both forms of dislocation there is deep-seated pain in the pelvic and ilio-sciatic regions, increased by the slightest, passive movement, and especially by pressure with the fingers. Active movement of the limb is abolished, or is restricted to slight flexion of the toes. If, however, the limb be well supported it can be flexed and extended to a limited extent without pain. In luxation upwards and backwards, in consequence of the laceration of the subpubic ligament, there is stretching or deviation of the urethra and a resistance to the passage of a catheter; in the luxation directly forwards, there is little disturbance in the pubic region, and the flow of urine is free. In luxation upwards and backwards, there is no compression or laceration of the nerve-trunks to such an extent as to produce numbness or paralysis; in the dislocation directly forwards, the sacral nerves may become stretched, producing more or less marked and persistent disorder of their functions. When the luxation is unaccompanied by fracture, the bladder and urethra are generally uninjured. Occasionally, however, rupture of the bladder has occurred in such cases, probably as the result of direct pressure during the accident. Except when the coccyx is dislocated forwards, there is no disturbance of the rectum. In the three cases of simple dislocation, observed by Dr. Salleron, the displaced iliac bone was completely immovable. Key has described an instance where the ilium was dislocated backwards and the finger could be laid in the sacro-iliac joint. In this, however, the bone must have been displaced outwards. When

both iliac bones are dislocated backwards, and especially when there is also luxation of the pubic symphysis, the severity of the injury and of the symptoms, generally, renders the diagnosis easy. In cases where the local injury and the visceral lesions are not so severe or complicated as to involve immediate danger, the use of anæsthetics will probably enable the surgeon to make his diagnosis more accurate; when, however, the injuries are so severe as to be obviously fatal, at a more or less early date, Dr. Salleron thinks that the surgeon should abstain from minute examination, and make, merely, a general diagnosis. *Prognosis.*—Even in the more simple cases the prognosis requires to be carefully made, and in the complicated cases it is very unfavorable—the bladder being often lacerated, the urethra ruptured, and large vessels being torn, giving rise to extravasation into the pelvis and sometimes into the peritoneum. Together with these lesions there are almost always injuries of the head, chest, and spine. Other complications, of which the observation of cases has shown the possibility, are contusion of the sciatic nerve, concussion of the spinal cord, intra-pelvic suppuration, &c. The prognosis is especially unfavorable in cases of dislocation of both iliac bones backwards, or of the sacrum forwards, on account of the great disturbance of the parts which this lesion produces. *Treatment.*—Dr. Salleron advises immediate attempts at reduction in all cases of dislocation of the pelvic bones, whether fracture be also present or not. The patient must be kept lying on the back in a state of absolute rest, and any complications that arise must be treated according to their nature.

Reduction of a dislocation of the femur after five and a half months.—Dr. M'Kee records a case. The patient was a woman who was thrown out of a trap on the left knee. She was at a distance from any advice. After five and a half months the dislocation was diagnosed and reduced by manipulation under chloroform. There seemed to be some tendency in the other hip to become dislocated during pregnancy. Great difficulty was experienced in keeping the femur in its place after reduction. It slipped out once, but returned with an audible snap. ('Am. Journ. Med. Sciences,' Jan. 1871, 281.)

Dr. James Norton notes a case of dislocation of the femur backwards and upwards, with fracture of the acetabulum, which was reduced *after three months.* ('Brit. Med. Journ.,' May 27, 1871.)

Unreduced dislocation of the femur.—Mr. MacCormac describes a specimen of unreduced dislocation of the femur. The patient was a man, æt. 70. A weight of metal casting fell on him; his abdomen was injured extensively. The symptoms of the dislocation were inversion of the limb, the thigh was flexed and rigid, the amount of shortening was difficult to make out. As the patient lay in bed the knee rested above the patella of the sound thigh. The head of the bone could with difficulty be discovered lying near the sciatic notch. The trochanter was in a plane somewhat posterior to the normal situation. The head of the femur was found to have been displaced almost directly backwards; it rested behind the acetabular ridge opposite the middle and upper part of the great sciatic foramen. The anterior part of the capsule remained intact. The tendon of the obturator internus was below the head. The specimen

confirmed most of Bigelow's views. An illustration is given. ('St. Thomas's Hosp. Rep.,' ii, 142.)

Simultaneous dislocation of both femora.—Mr. William Pollard records a case in a man, æt. 53. The right was thrown into the thyroid foramen and the other on the dorsum. Reduction was effected by manipulation. Two months later, he could walk perfectly. His recovery was delayed by an attack of gout in the left foot. ('St. Barth. Hosp. Rep.,' viii, 105.)

Hip and shoulder dislocations and their reduction without traction, by Rushton Parker. ('Brit. Med. Journ.,' Sept. 7, 1872.)

Dislocation of the knee.—A man, æt 50, slipped from a ladder and severely lacerated the soft parts of the calf of the left leg and the skin of the popliteal space, and also dislocated the left tibia outwards and slightly backwards. After *two months* he came under the care of Mr. Erichsen. At that time the leg was fixed nearly at a right angle and was quite useless. With the aid of chloroform the reduction was effected without any great difficulty. ('Med. Times and Gazette,' Oct. 14, 1871, 470.)

Simultaneous dislocation of the three cuneiform bones.—An instance of this extremely rare injury is quoted in the 'Gazette Méd. de Paris,' Dec. 30, 1871, from the 'Gaz. Méd. de l'Algérie.' It is described by Dr. Bertherand. The subject was a man, æt. 37, an *infirmier*, who fell on the soles of his feet from a height of four mètres. After being under treatment for some time, he left the hospital completely disabled by lameness. When M. Bertherand saw him, the right foot was strongly flexed on the leg, especially on the inner side. The first three metatarsal bones, with the cuneiform bones, were raised, forming a higher plane than that of the dorsal surface of the foot. On the external side of this elevation was a vertical surface consisting of the outer surface of the third cuneiform bone detached from its articulation with the cuboid. On the inner side was a depression, increasing considerably in this direction the normal concavity of the plantar arch. Behind, there was another depression, the upper surface of the scaphoid lying lower than the back of the cuneiform joint. In this cavity the tendons of the tibialis anticus muscle, on the inner side, and of the extensors of the toes, on the outer side, were felt very distinctly. The foot was atrophied; the tarso-metatarsal joints were nearly ankylosed, and the length of the inner border of the foot was shortened to the extent of about 15 millimètres. The patient walked on the heel of the affected foot, it being impossible to bring the first three toes to the ground.

Subastragaloid dislocation of the foot.—A case of dislocation of the foot inwards from beneath the astragalus came under the care of M. Gosselin in January, 1872. The foot was turned inwards, with the under border looking upwards; there was a rounded projection on the exterior side of the foot, in front of which a depression could be felt, and, on the inner side, was a depression having an antero-posterior direction, at the bottom of which the inner malleolus could be indistinctly felt. Reduction was readily accomplished under chloroform. ('Gaz. des Hôpitaux,' 10 Février, 1872.)

Compound dislocation of the foot.—Mr. Spencer Smith gives a clinical lecture on two cases of compound dislocation of the foot, complicated, in one of them, with compound fracture and dislocation of the astragalus. Recovery in both instances, with useful limbs. One patient was a man, æt. 37, the other a married woman, æt .28. ('Brit. Med. Journ.,' Feb. 17, 1872.)

Plastic apparatus in surgery, especially plaster of Paris.—Dr. St. John writes an elaborate paper on the employment of plaster of Paris splints in the treatment of fractures. He enters, at length, into the history of the employment of plastic apparatus, the advantages of such apparatus, the method of applying the splints, and the cases in which he has himself used this mode of treatment. He tabulates his results. A great deal depends on the manner in which the apparatus is put on. In fracture of the femur, ether is administered, and extension is kept up by a traction apparatus while the plaster is applied. The limb is padded with blankets. The plaster should be cut up the middle soon after its application; he generally makes two cuts, one on each side of the middle line, and thus removes a strip an inch wide. He prefers a sharp, shoemaker's knife as the most useful instrument for doing this. He sums up as follows. He has endeavoured (1) to show that the results are at least equal to those of any other instrument, and, in some fractures, better. To support this ground he adduces 192 cases of simple fracture (50 being of the femur) and 26 cases of compound fracture. (2) That union is not delayed by this splint, as alleged by some. On this point he appeals to the records of 313 cases, 192 of the gypsum apparatus and 121 of the starch, felt, leather and pasteboard. (3) That the splint may, with safety, be applied, at once, in fractures of all bones. In support of this point there are 176 cases in which this splint was applied within forty-eight hours from the date of the accident, of which 69 are simple and 23 compound fractures (gypsum apparatus), 23 are simple fractures (felt splint), and 61 simple fractures treated with gypsum splints, of which he could not get complete details as to results, the patients having been discharged from the hospital wearing the splints, &c., but whose records are given beyond the date, when we may be sure that no untoward result could arise, dependent upon the early application. (4) To show that great contusion of soft parts, swelling or extravasation of blood, do not, of necessity, contra-indicate even its immediate application. Here belong 32 cases of simple fracture and 23 of compound fracture thus described. ('Am. Journ. Med. Sci.,' July, 1872, 75—112.)

Spiral, spring extender.—Mr. Holthouse advocates the employment of a spiral spring in order to produce extension in diseased joints, fractures, &c. ('Lancet,' June 8, 1872, 789.)

Incomplete fractures.—Dr. R. W. Smith describes and figures specimens of incomplete and green-stick fractures of the radius and ulna, taken from a young man (æt. 18) who was whirled round and crushed by machinery. The fracture had occurred about two inches above the wrist-joint. There was also a complete fracture higher up, which showed the mechanism of the "green-stick or sally fracture." He also describes and figures a specimen of *complete* fracture of the fibula, in

which, though the bone was broken across, the fragments were so dove-tailed into one another that they were held firmly in a curved position, separated at the convexity of the curve, jammed together at the concavity. This specimen was noticed on a former occasion, but it was not then sketched. ('Dub. Journ. Med. Sci.,' April, 1872, 351.)

A simple method of removing silver wire when employed in cases of ununited fracture.—Mr. Mason invites attention to a modification of the plan of transfixing and holding the fractured ends in apposition with twisted wire. He operated on an ununited fracture of the ulna and radius. The smooth surfaces of the ends of the ulna were sawn off diagonally, so that when placed together the new surfaces accurately corresponded. A hole was bored obliquely through them, and a needle was passed through the hole. The needle was then encircled with a loop of wire, the ends of which, having been firmly twisted on themselves, were made to emerge, together with the needle, from a small incision in the skin, placed at right angles to the larger wound. By removing the needle the wire would be at once disengaged. The radius was treated very similarly. The wire was finer and carried round the needle in a figure of eight. Mr. Mason suggests that it is possible that the division of the fibrous bond of union may be dispensed with, the needle and loop of wire being alone employed; that the needle may be shorter, so as not to press on the neighbouring structures; that ivory or other material may be used in the place of the needle; and, lastly, that the wire, being released, may be left to work its way out, its removal, if required, being effected at any time by traction. ('Med.-Chir. Trans.,' liv, 313.)

A clinical lecture on *delayed union and non-union of bones* by Mr. Callender will be found in the 'Brit. Med. Journ.,' Nov. 30, 1872. He alludes to obstructed venous circulation as a cause of delayed union. He mentions a case in which union was delayed for *ten months*—fracture of the thigh-bone. In the case of a soldier the humerus did not unite for *two years and a half*. In another case the femur did not unite for *two years*. At St. Bartholomew's there has been but one case in two thousand five hundred fractures. He alludes to abscess of the bone, foreign bodies between the ends, want of apposition, fractures near a joint, &c.

Wrist-drop from paralysis of the musculo-spiral nerve in fractures of the humerus.—Prof. Erichsen remarks that injury to the musculo-spiral nerve in fracture of the humerus must be of rare occurrence, for he has met with no instance recorded in any standard work. He had himself seen three instances quite recently. When the main trunk is injured complete wrist-drop is produced. When the posterior interosseous division is injured, the loss of supination and of extension is not so complete. The supinator longus and extensor carpi radialis longior, being supplied by branches from the main trunk, are not paralysed, and thus a certain, though very limited, movement in the sense of supination and extension is preserved, though the forearm and hand fall naturally into state of pronation and flexion. The first case was that of a woman, æt. 29, who fell and fractured her humerus about the middle; ten weeks

afterwards, she had marked wrist-drop. The symptoms are given at length. There was a difference of temperature, on the two sides, of 5° or 6°. The thumb and index-finger were numb; when the fingers were completely flexed, she could extend the joints between the first and second, and second and third phalanges. This was evidently accomplished by means of the interossei and lumbricales (figures of the hand and fingers are given). When the forearm was flexed, a slight, supine movement could be made by the patient, probably due to the action of the biceps. The second case was that of a woman, æt. 30, who fell on her elbow, and was found to have sustained a compound fracture of the external condyle of the humerus. She could not raise the wrist or the fingers when the hand was pronated. There was some power of supination and also of extension, probably due to the extensor carpi radialis longior and to the supinator longus. The muscles supplied by the posterior interosseous nerve were paralysed, the radial had escaped. She could feel in the fingers and there was no loss of temperature. The third case was one of fracture of the lower epiphysis of the humerus, wrist-drop from paralysis of the posterior interosseous nerve and tonic contraction of the fingers. The patient was a girl æt. 7. She had fallen over a croquet hoop and the lower part of the right humerus was fractured. She had very marked wrist-drop, but could easily extend her wrist, her hand was pronated and could be but imperfectly supinated. The fingers were flexed and drawn into the palm of the hand. She could use the interossei and lumbricales; the flexor tendons were much contracted; the arm was smaller than the other. There was a difference in temperature, on the two sides, of 8° or 9°. ('Lancet,' July 1, 1871, 1.)

Fracture of the olecranon in each arm; atrophy of muscle.—Mr. Hutchinson notes the case of a man, æt. 27, who was admitted into the London Hospital, who had fractured the olecranon process on each side, and (as he stated) ruptured the tendon of his calf. These accidents had all happened several years before. Two years before admission, he fractured the right olecranon, by falling on his elbow from the rigging of a ship, a height of about ten feet. He had the arm put in splints in a straight position for three weeks. Since that time he had had no power to lift the arm straight in the air above his head; the forearm falls into extreme flexion as soon as its centre of gravity gets to the proximal side of the elbow. The triceps of the right arm was found to be wasted and quite flabby; when he tried to straighten the arm, that muscle did not act in the least. The upper fragment of the olecranon was separated, by at least an inch, from the lower one. Five years later, he fractured the left olecranon by a somewhat similar accident, falling about four feet. The arm was kept straight in splints for six weeks, after which time he soon regained perfect use of the limb. The upper fragment was found to be movable on firm pressure, but he had perfect use of the triceps and his muscle was apparently quite strong. The fracture appeared to have been oblique and there was strong, fibrous union. He met with a third accident, about eighteen months before, in which he probably ruptured the tendo Achillis on the right side. He jumped off a table, and on alighting felt as if something had struck his right calf. On examining

it he found a little "dent" into which he could put his finger. After rest in bed for a time, he could walk as on admission. There was found, on careful examination, a slight swelling at the junction of the lower and middle thirds of the calf, or perhaps rather higher. The right calf measured half an inch less in circumference than the left. The wasting was quite perceptible to the touch and seemed to involve, chiefly, the inner part of the gastrocnemius, for, when the calf muscles were put in action, it was that part which remained flabby, while, apparently, the soleus could be felt to act beneath it. Possibly the rupture had involved only the tendon of the gastrocnemius before its junction with the soleus. The calf of this leg was considerably weaker than that of the other, so that he could not stand on tip-toe on the corresponding foot; he limped with the left foot. Mr. Hutchinson remarked that no cause was assignable for the occurrence of these injuries. The health was good; no fractures of any other bones had occurred. The difference in the condition of the two arms was probably due to the too early use of the right one. He thought it was not difficult to obtain close union after these fractures, although very difficult to get actual bone. It was of interest to note that absolute atropy of the triceps on the right side by no means disabled the arm. In this respect the case was parallel to what happens after atrophy of the quadriceps extensor of the thigh. The man could use the arm well, except in extension, and followed a laborious occupation without discomfort. The reason why a muscle should atropy in consequence of non-union of the bone into which it is inserted is not quite obvious; but Mr. Hutchinson has repeatedly noticed this result after badly united fractures of the patella, and sometimes very good ones. He had never before noticed it after ununited fracture of the olecranon. ('Lancet,' July 29, 1871, 159.)

Fracture of the head of the radius.—Specimen described by Mr. James Adams ('Path. Trans.,' xxii, 205).

Fracture of the ilium by muscular violence.—A case of fracture of the anterior, superior, spinous process of the ilium from muscular violence is reported in the 'Am. Journ. Med. Sciences,' Jan. 1871, 277. The patient was under the care of Drs. S. Joy and J. W. McWhinnie who recorded the case in the 'Canada Med. Journ.,' Sept., 1870. A very muscular youth, æt. 17, in turning at a certain point while running in a foot race, felt something snap in his right hip, walked a few steps and fell. "On examination distinct motion and crepitus could be felt by pressure over the process, also by placing the thumb over the origin of the sartorius and rotating the thigh. The fracture extended into the notch below, but there was no great tendency to displacement save when the leg was abducted, thus placing the sartorius upon the stretch, the process doubtless being partially kept in place by the fibres of the tensor vaginæ femoris arising from this process on the one hand, and Poupart's ligament on the other, when tension was taken off the sartorius." The patient was kept in bed with the thigh flexed and the shoulders raised. In two weeks the patient made a good recovery without displacement remaining.

Another case is recorded by Mr. Hyde ('Brit Med. Journ.,' Nov. 9, 1872).

Ununited, extra-capsular fracture of the neck of the thigh bone.—Mr. Lister, in the case of a man, æt. 45, who had fractured his thigh eighteen months before without union having occurred, cut down at the seat of fracture, felt the ends of the bones gouged them, and then dressed the wound antiseptically, applying strong support. Bleeding occurred subsequently and the wound had to be stuffed with lint (antiseptically). Complete recovery resulted and the man walked well. (Address, 'Brit. Med. Journ.,' Aug. 26, 1871.)

Spontaneous fracture of the femur.—Mr. Durham records a case in a man, æt. 44. Re-union occurred and the patient remained well four years later. The pathology remained open to doubt. ('Clin. Soc. Trans.,' iv, 63.)

Fracture of the femur.—Dr. Montgomery writes on the impractibility of restoring to its full length a thigh-bone shortened by fracture, as apparently demonstrated by experiment. In a case of fracture of the femur in a muscular man he tried reduction after death; the fracture was transverse with overlapping to the extent of one inch and a quarter. The force employed by four men reduced the overlapping half an inch. A weight of one hundred and twenty pounds was then applied over a pulley and left for seventeen hours. The overlapping was then only a quarter of an inch. "I venture the opinion that in most, and probably in all, cases of fracture of the femur whether transverse or oblique, *with shortening*, the fractured ends of the bone cannot be placed in exact opposition by any force which can be safely applied to living tissue. It is admitted by most writers on surgery that shortening of the limb in fracture of the thigh is to be expected and is generally found after proper treatment. Would it not be more correct to say it is always found (when produced by a fracture), because a shortened thigh-bone *cannot* be fully extended to its normal length after the broken ends of bone have passed each other?" ('Am. Journ. Med. Sci.,' July, 1872, 112.)

Ununited fracture of the tibia and fibula; resection of the tibia.—Dr. Edward Bennett records a case of ununited fracture of the tibia and fibula in a strong man æt. 34. The accident had occurred four months previously; the fracture was compound. On proceeding to operate, a mass of tissue was found between the ends of the bones. The overlapping ends of the tibia were cut off and the union of the fibula severed. No pegs were inserted; the limb was put up straight and firm union resulted. The leg was two and a half inches shorter than the other (figures of the amount of the displacement are given). ('Dub. Journ. Med. Sci.,' April, 1872, 285.)

Fractures of the tibia.—In oblique fractures of the tibia near the ankle Dr. Montgomery has successfully employed continuous extension by means of a weight. He adopts a slight modification of the usual plan of fixing the weight to the foot. ('Am. Journ. Med. Sciences,' April, 1871, 357.)

Fractures of the odontoid process.—Dr. Stephen Smith has made numerous experiments to show the mode of production of these fractures. His conclusions are:—1. In a healthy condition of parts the odontoid process has greater strength than either the anterior ring

of the atlas or the transverse ligament. 2. The odontoid process is less liable to be fractured by external violence than the body of the axis at the insertion of the process. 3. The odontoid process is not fractured by being driven against the transverse ligament or anterior arch of the atlas. 4. The odontoid ligaments have a combined strength greater than the odontoid process. "I am satisfied, however, that the efficient agents in this fracture are the odontoid ligaments." He details various cases under the heads of spontaneous fracture; fractures from direct violence; from external violence applied to the forehead, the back part of the neck, side of the head; fractures with slight symptoms at first; multiple fractures; fracture followed by exfoliation and recovery; fracture and recovery with the formation of a false joint. He discusses the various modes of death and the symptoms; the chief being, that the patient carries the head supported on his two hands.—('Am. Journ. Med. Sciences,' Oct. 1871, 338-58.)

Unilateral dislocation of the fifth cervical vertebra.—Dr. Reyburn records the case of a man, æt. 24, who sustained a unilateral dislocation of the fifth cervical vertebra by a weight falling on his neck. Paralysis gradually came on. After nine weeks and two days reduction was effected with improvement in the symptoms. Death occurred a fortnight later. There was no fracture. An abscess was found in the cord. Remarks on other cases recorded are made.—('Am. Journ. Med. Sciences,' July 1871, 110.)

Fracture of the spine.—A case of fracture of the fifth cervical vertebra, with laceration of the spinal cord, and complete paralysis below the root of the neck, in which the patient lived for three months, is recorded in the 'Am. Journ. Med. Sciences,' April, 1871, 590.

The relative mortality of analogous injuries in civil and military practice.—Dr. R. Volkmann, of Halle, holds ('Archiv. für Klin. Chirurg.,' xv) that the mortality after injuries and operations is not greater in military than in civil practice; on the contrary, that it is even less. In 1699 gunshot fractures of the bones of the leg, occurring in the wars of the last ten years, and the statistics of which were collected by Billroth, there were 401 deaths, or 23·6 per cent.; and in 109 cases which came under Dr. Volkmann's notice, there were 25 deaths or 22 per cent. On the other hand, in 885 complicated fractures of the leg, occurring in various German and British hospitals, there were 339 deaths or 38½ per cent. In one hospital alone (St. Bartholomew's) the mortality was lower than in military practice, being 20 per cent. In most of the German hospitals the mortality was 40 per cent. With regard to the cases of gunshot fracture of the leg in which attempts were made to preserve the limbs, Volkmann finds that, in the Italian war, the mortality was 17 per cent. Among the 109 patients under his care at Trantenau, amputation of the thigh was performed in 18 cases, and 9 of the patients died; while, in 91 cases in which he employed conservative treatment, the mortality was 16, or 17·5 per cent. Billroth, at Weissenburg, and Socin, at Stettin, had a mortality of about 14 per cent. among the cases treated conservatively; and Stromeyer, in the Danish war, had a mortality of only 10 per cent. On the other hand, of 320 patients subjected to conser-

vative treatment in civil hospitals, 120 died, or 32.5 per cent. With regard to complicated fractures of the femur, Volkmann has hitherto been able to collect only a limited amount of statistics from civil practice. Injuries of this kind generally occur in connection with railway accidents, accidents with machinery, blasting of rocks, &c., and demand primary amputation. Dr. Fränkel has collected 140 cases in civil practice which were, at least at first, subjected to conservative treatment; of these 85 died, or 60 per cent. This rate of mortality is about the same that has been observed in military practice after fracture of the shaft of the femur by gunshot. In the more recent cases, the rate of mortality has been even less. Volkmann himself had 44 deaths in 95 cases, or 46·3 per cent. Among the 885 cases of complicated fracture of the leg referred to as having occurred in civil practice, there were 177 amputations; the percentage mortality after the primary amputations was 60, and after the secondary, 77. On the other hand, among the 3813 cases in military practice collected by Billroth the death-rate was only 41.6 per cent.

Having given these statistics, Volkmann goes on to say that, in complicated fractures in civil practice, the soft parts are most injured; while in military surgery the bones suffer most, being often very extensively fissured. The statistics, already referred to, show that the injury of the soft parts has a much greater influence on the mortality than that of the bones—an influence even greater than has generally been supposed. Again, the result in gunshot fractures depends much less on the extent of the injury of the bone than would be *à priori* expected. Volkmann has several times had the opportunity of examining, after death, bones (including the femur) in which from twelve to twenty fragments of various sizes had become consolidated, and where no necrosis had occurred, no splinters had been removed, and the deformity of the limb was no greater than after an ordinary fracture. The mere extent of the fracture and the number of splinters, he, therefore, holds not to afford sufficient ground for primary amputation. Simple fractures are very rare after bullet wounds. He has met with only two or three instances among many hundred cases of such injuries. Gunshot wounds of the joints, also, may heal without suppuration or necrosis. Compound fractures of the leg occurring in civil life as the result of indirect violence, and presenting but slight injury to the soft parts—perhaps a clean cut-wound—appear (at least in the larger hospitals) to be attended with a higher mortality than splintered fractures from gunshot. In cases of death after fracture of the leg, in civil practice, the fatal event occurs, in 50 per cent., within the first fortnight. In gunshot fractures of the same part, on the other hand, death does not occur (except in rare cases) until the third week. The cause of this marked difference is thus explained:—In civil practice those patients who die within the first fortnight are carried off by acute septic processes. After gunshot wounds, on the other hand, the most acute and rapidly destructive, septic, phlegmonous processes are seldom or never met with. Of sloughing phagedæna after a bullet wound, Volkmann met with no examples; in one case under his care, where gangrene occurred, he found injury of the large vessels, with much extravasation of blood.

Local reaction sets in later and more slowly after gunshot wounds, and has not the same tendency to advance as after other injuries. A number of patients, indeed, die of septicæmia after gunshot wounds; but, in these cases, there are almost always found purulent deposits around the ends of the bones, presenting a much more limited character than the diffused deposits met with after compound fractures in civil practice. The comparatively small amount of injury of the soft parts, and the less extensive, local reaction, must have a favorable influence on primary amputation in the field. But, leaving this subject, the difference in the mortality after intermediate amputation in civil and in military practice is noteworthy, and has been noticed by Billroth as well as by Volkmann. Amputation performed as late as about the sixth day after the injury, for gunshot wound, is in many cases as successful as primary amputation. But after this comes a period extending to the eighth week, in which extensive inflammation prevails, and (at least as regards the thigh) a patient operated on in this stage very rarely survives. The discussion which followed the reading of Dr. Volkmann's paper before the Surgical Congress in Berlin is reported, at length, in the 'Berliner Klin. Wochenschr.' for May 6, 1872. Dr. von Langenbeck, the president, could not agree that infiltration of the wounded parts does not occur to the same degree in military, as in civil practice. In extensive, gunshot fractures of the femur, at least, swelling and all the symptoms of sepsis often appear within twenty-four hours; so rapidly, indeed, as scarcely to allow time for primary amputation properly so-called. To this he was disposed to attribute the great mortality following the operation. He agreed with Dr. Volkmann that the different amount of danger in civil and military practice was due to the relative amount of injury of the bone and of the soft parts. Injuries from cannon balls or fragments of shells may very closely resemble certain injuries occurring from accidents in civil life. But there is a great difference in the result between an entire separation or a mere crushing of the soft parts. Laceration of the soft parts by splinters of shells are attended with relatively small danger, even when the bones are not injured; and, when the bones are injured, death occurs at a later period than in civil practice. Cases where the soft parts were contused by cannon balls without a large open wound, were, in his opinion, much more liable to septic infiltration than those in which the soft parts were extensively laid open. Dr. Bardeleben thought that Dr. Volkmann attached too little importance to the injury of the bones. Dr. Busch had already noticed the greater mortality after severe injuries of the leg in civil than in military practice. Referring to injuries of the knee, he remarked that severe wounds from axes, &c., often occurred in civil practice, and might be compared with gunshot wounds. As far as he knew, more than half the cases of knee-joint injury treated conservatively in military surgery were successful; but this fell far short of civil practice, where he could remember only two deaths in a number of injuries of the knee that had come under his notice. He agreed with Dr. Langenbeck as to the frequency of purulent œdema after gunshot wounds, and had been struck with the number of cases of this which he saw at Metz, even after resection of the elbow and shoulder joints. Dr.

Simon believed that necrosis was a much more common result of the splintering of bone than Dr. Volkmann supposed. He could not call to mind one instance of extensive splintering in which necrosis did not occur. Several other surgeons also took part in the debate.

Gunshot wounds; experience in the late war.—Mr. Sandford Moore, Assistant-Surgeon, 4th Dragoon Guards, gives his experience on certain questions connected with the treatment of gunshot wounds, in the 'Lancet' (April 8, 1871, 476 and 502.) 1. There are two operations which the whole experience of the war goes to show should be abandoned, at any rate in field hospitals, or until all further necessity for removing the patient is ended, viz.—(*a*) excision of the knee-joint; (*b*) amputation by the flap method in the upper or middle third of the leg. The first operation has been almost invariably followed by a fatal result. The latter operation has the disadvantage that the posterior flap becomes very heavy and separates from the anterior flap. If the flaps are made of skin only, they take longer to make and do not offer so good a covering to the bone, as that produced by a circular amputation. The German surgeons have advocated leaving amputation of limbs for gunshot wounds till the third day. Carbolic acid was used as a disinfectant simply. Marine lint was very useful. Various matters in connection with the surgery of the late war are noted by Dr. Murray in "Four Days in the Ambulances and Hospitals of Paris under the Commune." ('Brit. Med. Journ.,' May 20, &c., 1871.)

Remarks on the Prussian Siege of Paris, by C. A. Gordon, will be found in the 'Brit. Med. Journ.,' Sept. 16, 1871.

Remarks on the instruments designed for exploring gunshot wounds to detect bullets or other foreign bodies, by Prof. Longmore, will be found in the 'Brit. Med. Journ.,' Dec. 23 and 30, 1871.

Under the title of "Recollections of Work done in an Ambulance," Mr. MacCormac relates many interesting cases of gunshot wounds. His papers are illustrated. A statistical table showing the number of the various operations performed, and the results of the same is given in the last communication (March 11, 1871), ('Brit. Med. Journ.,' 1870 and 1871.) See also a case of excision of the shoulder and elbow-joints *antea*.

The Classification and Tabulation of injuries and surgical operations is dealt with, at length, by Prof. Longmore ('Med.-Chir. Trans.,' vol. liv, p. 201-46).

The War Department of the United States has issued a report on the surgical cases in the army from 1865 to 1871. ('Circular,' No. 3.) It contains an immense amount of valuable detail on all kinds of injuries and statistics of proportion of recoveries, &c.

Three successful cases of *amputation at the knee-joint* were performed, the condyles being removed.

Surgery of the arteries in gunshot wounds.—M. Verneuil communicated to the Surgical Society of Paris five cases of injuries of large arteries by balls and pieces of shell, in which hæmorrhage was arrested spontaneously. The performance of primary amputation allowed the state of the vessels to be examined. The arterial coats were divided, throughout, at the same level, as if they had been cut by a knife; and

a clot extended for some way above the divided end of the vessel. In two of the cases, the posterior tibial and the popliteal were the injured arteries. ('Gaz. Méd. de Paris,' July 22, 1871.)

Gunshot injuries of bone.—Specimens exhibited by Mr. Mac Cormac. ('Path. Trans.,' xxii, 199.)

Fourfold, gunshot wound of the chest; recovery.—Dr. Lorinser relates in the 'Wiener Med. Wochenschr.,' for March 25, 1871, the case of a man, æt. 40, who for the purpose of committing suicide, discharged a bullet from a four-barrelled revolver into the chest between the second and third left ribs, a second between the third and fourth, a third between the fourth and fifth, and a fourth between the fifth and sixth ribs. He was soon afterwards seen by Dr. Lorinser, who found him lying dressed on a sofa, exhausted by hæmorrhage, and pale. He objected, at first, to examination and wished to be left to die in peace. There was moderate hæmorrhage from the wounds; the movements of the chest on the left side could scarcely be perceived; respiration was laboured and stertorous; and the heart's action was weak. On the third day, he had recovered sufficiently to be undressed and put to bed. A bullet was now felt lying under the skin below the angle of the left scapula; but as it caused no inconvenience, it was not removed. The other balls could not be found. The patient went on well for about a week, when he was suddenly attacked with repeated paroxysms of dyspnœa, which were relieved by cherry laurel water and acetate of morphia. For a time, again, there was improvement; but, on his attempting to leave his bed, for a short time, in the third week, he was again seized with dyspnœa, to which were now added loss of appetite and sleeplessness. This state continued till the eighth week, when he had recovered sufficiently to leave his bed and go into the open air. Three months after this injury, he went to the Tyrol where he spent the summer, and returned in better health than he was in before the injury.

Gunshot wound of the neck; retention of the ball for eight months.—M. Baumès communicated the following case to the Surgical Society of Paris, in October, 1871. In the preceding January, an officer was shot in the right submaxillary region. Hæmorrhage occurred several times, but was always arrested by plugging with charpie. For some days after he received the wound, he was treated in the hospital of La Pitié, under Mr. Trélat. It was found necessary to perform tracheotomy, which was attended with difficulty by reason of the general swelling of the neck. After its performance, the breathing became free, and the swelling diminished. The canula fell out easily; the wound soon closed, and the breathing remained normal. Still the part which had been wounded remained enlarged, and fistulous openings presented themselves in the neighbourhood. On introducing a probe, it struck against a foreign body, but of its nature or size no idea could be formed. The patient had an obscure notion that something was removed when he first came under treatment after being wounded. At the end of eight months, the parts remained indurated. An abscess now formed, and burst into the mouth, allowing an examination to be made with ease. A hard body was now felt lying deeply in the submaxillary region: it was removed through an external incision, and was found to be a musket-ball weigh-

ing 215 grammes (more than 7½ ounces). ('Gaz. Méd. de Paris,' 21 Oct. 1871.)

Trephining for Gunshot.—A case is recorded in which a soldier was wounded in the forehead by a bullet. After ten days "a spot was discovered, a little to the right of the occipital protuberance, that was painful when touched, and had the appearance of being a very slight portion of the occipital bone forced by some power from within outward." The wound in front was examined more carefully. The frontal bone had received a fracture of both tables, but in such a manner as to allow the piece or pieces to spring into place again. A probe was passed into this wound outwards to the "back part of the head in the immediate neighbourhood of the lesion of the occipital bone, where it met a hard, convex substance." The occipital bone was then trephined, and a bullet extracted. The man recovered. ('Am. Journ. Med. Sciences,' Jan. 1872, 120.)

Dr. Halstead records ('St. Louis Med. and Surg. Journal,' March, 1870) the case of a man, æt. 17, who was shot in the head by the breech-pin of his gun. The pin struck his forehead, smashed in the bone, and stuck into the brain. The man pulled it out himself and then rode on horseback for some distance. He afterwards became insensible. Pieces of bone were found driven for two inches into the brain. As many as thirty-eight pieces were removed, and also a *three-fourth inch screw*. It was supposed that the breech-pin passed nearly to the petrous bone, a distance of four and a half inches, it is said, from the forehead, tearing the falx cerebri and opening the superior, longitudinal sinus in its passage. The injuries, &c., are described in detail. The man wholly recovered. He was not in any respect aware of any difference, three months later, in his mental or physical condition, from that before the accident. ('Am. Journ. Med. Sciences,' Jan. 1871, 301.)

Dr. Howard narrates the following case in detail. On April 6, 1862, a soldier, æt. 19, was shot in the head by a Minié ball. He staggered, fell back, and remained insensible till the next day. On April 9 he was found sitting up, leaning against a tree, and sensible. On April 15 he was carefully examined. There was a wound in the left temple, and a probe passed obliquely across the most prominent part of the forehead and emerged through a small incised wound, said to have been made by a surgeon who extracted a ball, which the patient saw. Just above this incision was a slight depression in the frontal bone. The left leg was numb. After a few days "symptoms of compression" came on. "Coma becoming almost complete," it was determined to explore. On April 21, a triangular depression was found in the centre of the forehead, the apex of the depressed portion was chipped off, leaving a small opening not admitting a probe. In this was entangled a single hair. This at once suggested the presence of a foreign body beyond. The trephine was applied. A Minié ball was removed from a depth of two inches. The patient recovered. From the appearance of the ball it seemed probable that a portion had chipped off, remained under the skin, and had been removed by a surgeon. The remainder entered the skull and formed a trap-door

aperture, the lid springing into place as soon as the ball passed. Why the ball should have entered the skull, at all, at a point beyond the greatest convexity of the forehead, is not to be accounted for; but the ultimate recovery of the patient is the most remarkable feature in the case. The narrator has failed to find another case on record in which a missile out of reach and out of sight has been discovered and removed from the brain by trephining—a permanent recovery afterwards resulting. A diagram of the fracture is given and of the ball. (Ibid., Oct. 1871, 385.)

Gunshot wounds of the lower extremity.—Mr. MacCormac writes a very interesting paper on his experience of the treatment of gunshot wounds of the lower extremity. He quotes statistics from English, French, German, and American authorities. In the Anglo-American ambulance, Mr. MacCormack and others treated in all, 47 cases of gunshot fracture of the femur. In 21 of these, amputation was performed; 16 terminated fatally. Excluding disarticulation at the hip, the mortality was 72·22 per cent. 26 cases were treated without amputation, many of them being in a hopeless condition. One half died. If an attempt is made to save the limb it is better to avoid any strenuous efforts to remove the deformity. If amputation is determined on, it should be done within the twenty-four hours. In the ambulance, 57 cases of gunshot fracture of the leg were treated, with 23 deaths. 25 were treated conservatively, with 8 deaths, or 32 per cent.; while 32 required amputation. Of these 13 died, or 40·6 per cent. Of the operation cases, 16 consisted of primary amputation, with 5 deaths, and 16 were secondary amputations, with 8 deaths. As regards injuries to the hip-joint, the American statistics given in the Surgeon-General's Circular No. 21,869 are referred to. (See last 'Retrospect.') Injuries of the knee- and ankle-joints are discussed. Mr. MacCormack sums up—"The considerations detailed in this paper appear to me to afford grounds for concluding against the universal application of amputation in regard of gunshot fractures of the shaft of the femur. Sound, though it may be delayed, union will often follow conservative treatment. I think, for general guidance, we may, for the present, declare that, in fractures of the lower half of the femur, the rule should be, when in doubt, to amputate, while, in those of the upper half of the bone, the converse should apply, namely, when in doubt to try to preserve the limb." Two plates of illustrations of injuries to the femur and to the tibia accompany the paper. ('St. Thomas's Hosp. Rep.,' ii, 43.)

Depressed fracture of the skull in a child, with deep laceration of the brain; no symptoms for six days; death from convulsions on the eighth day.—Mr. W. Adams ('Path. Trans.,' xxiii, 184).

Compound, depressed fracture of the skull; operation.—Dr. Meldon records the case of a boy, æt. 7, who was kicked on the head by a horse. Two compound, depressed fractures of the skull were found. On admission, he was "semi-conscious; one pupil was contracted and the other dilated." The depression was "an inch in depth." The bone was elevated and pieces removed from each position. In one case the dura mater was found lacerated. Hernia cerebri resulted in part, and was controlled by pressure. At the same time

was a quantity of purulent discharge. At the end of three years "the brain can be seen pulsating under the scalp in both the places where the fractures existed." ('Dub. Journ. Med. Sci.,' April, 1872, 295.) Mr. Nicholson records the case of a child, æt. 5, who had fallen down stairs while playing with a marble. Hæmorrhage occurred from a circular wound in the temple. A hole could apparently be felt in the skull. At the end of a fortnight a *large marble was removed from the temple*. The child did well; but the hole in the skull was not filled up at the end of ten years ('St. Barth. Hosp. Rep.,' viii, 91). Dr. R. N. Downs records a case of *punctured fracture of the skull*, in a boy, æt. 12, in which death resulted from the bursting of an abscess into the ventricles, four months after apparent recovery ('Am. Journ. Med. Sciences,' Oct. 1871, 429). A case of *compound fracture of the skull* with *protrusion and loss of brain-substance*, operated on by Mr. Wagstaffe, and followed by recovery, is noted in 'Lancet,' Aug. 17, 1872.

Mr. Annandale showed a patient to the Ed. Med.-Chir. Soc., who had recovered from a severe injury to the head. On admission he was found to have sustained a compound, comminuted fracture of the bones of the skull, and to have hemiplegia of the right side. The depressed portion of the skull was elevated and the fragments removed. One of the fragments had wounded the brain, so that a portion of brain came away. The patient had no other symptoms than those of hemiplegia; he was perfectly sensible and took his food. About the third day a fungus of the brain made its appearance, and gradually increased till it reached the size of a pigeon's egg. During the whole time the antiseptic treatment, as recommended by Prof. Lister, was carried out with the antiseptic spray, and pressure was applied to the fungus. There was no suppuration from the deep part of the wound. The pressure was quite successful, and, gradually, the granulations arising from the fungus adhered to those of the scalp, so that by keeping up steady pressure it was gradually diminished, and the wound healed. An opening in the bone-walls of the skull was left. Mr. Annandale said—"Having watched many of these cases, where the antiseptic treatment was not adopted, I think the treatment employed had much to do with the satisfactory results. In many of these cases fatal results happen from suppuration of the brain itself, but I believe the treatment prevented that. The patient is recovering from the hemiplegia, and can now use his right arm and leg." ('Edin. Med. Journ.,' Dec. 1872, 554.)

Mr. Stokes records the following interesting case:—A lad, æt. 18, was struck on the head and cut over the left temple five weeks before he came under care. This occurred in England during haymaking. He went on with his work. On the fourth day he suddenly lost all power of speech. He was under the care of a practitioner for a fortnight. His father was then sent for from Ireland. When the latter arrived, the son could recognise him, and spoke to him in monosyllables. He could walk about, and was quite sensible. For a fortnight more he [illegible] state. At the end of four weeks and three days [illegible]ry he had a violent attack of vomiting. They [illegible] Liverpool, the father left his son for a [illegible]m in a profuse perspiration and quite

insensible. After a while he improved, and was able to walk down to the quay, a distance of 200 yards. On board he became, again, quite insensible, and remained so. On admission he was quite comatose. On examination a slight depression was felt under the cicatrix of the wound in the temple. The pupil of the left eye was dilated, the right contracted; the pulse was 56; the respiration was stertorous; the insensibility complete; touching the cornea with a feather did not produce the slightest irritation. His head was turned to the right side. A stellate fracture of the frontal bone was found. A circular piece of bone was removed with a trephine, and the inner table found to be depressed. The dura mater was intensely congested, exceedingly tense, and bulged, hernia-like, out of the opening. An incision was made into it, letting out only turbid serum. Improvement followed. The respiration ceased to be stertorous, the pulse rose to 64, the left pupil became less dilated, and sensation was restored to the corneæ. He soon relapsed, however, and died about thirty-six hours after admission. At the post-mortem, "on removing the calvaria the membranes were found intensely congested, and a large abscess between the dura mater and the bone was found pressing on the left hemisphere. It was a remarkable circumstance that the abscess was not found immediately connected with the portion of depressed bone. It is, I think, a circumstance much to be regretted that the operation of trephining and elevating the depressed portion of bone was not performed when the symptoms of pressure first manifested themselves. ('Dub. Journ. Med. Sci.,' Dec. 18[illegible].)

Trephining for abscess within the cranium.—Prof. N. R. Smith relates ('Baltimore Med. Journ.,' Dec. 18[illegible]) a case:—A clergyman received a blow from a sharp stone over the left parietal bone. Separation of a small sequestrum followed. There remained a fistulous opening, which never closed during the long period of twenty years. When he came under care, examination with a probe, through the fistula, showed a cavity two and a half inches in depth between the bone and the membranes of the brain. The sinus was smaller than a quill. Trephining was proposed with. The bone was found of very hardness, and much thicker than common, and of unequal thickness. The operation was proceeded with, however, without hesitation, as the membranes were known to be far removed from the inner surface of the bone. When [illegible] was [illegible] about three ounces of fetid pus escaped. No [illegible] followed. The patient "entirely recovered," and [illegible] some time afterwards. ('Am. Journ. Med. Sciences,' [illegible])

[illegible] A paper by Dr. W. Pepper, on this [illegible] will be found in the [illegible] The patient was a man, [illegible] had febrile symptoms [illegible] and [illegible] the right frontal [illegible]

[illegible] two cases of injury to the [illegible] abscess of varying situation, first,

to the frequency with which convulsions or rigidity are associated with paralysis of the left side of the body as compared with that of the right; secondly, to the occurrence of these symptoms in cases of injury or disease of those parts of the right cerebral hemisphere which lie above the corpus striatum. ('Med.-Chir. Trans.,' liii, 129.)

Affections of the lungs from injury to the base of the brain.—Dr. Brown-Séquard, in the course of some experiments on guinea-pigs, was struck by the frequency with which the lungs are altered consecutively to a lesion of the brain. One of the most frequent causes of death was pneumonia. He made special experiments to ascertain the immediate effects of an injury to the brain on the lungs. "The results obtained were startling. In almost all cases of injuries by crushing or section of the pons Varolii ecchymoses were found in the lungs." Injuries to other parts of the base were followed, sometimes, by the same effects, and it is extremely probable that a slight pressure upon the pons by effused blood is sufficient to produce it. Injuries to the medulla and spinal cord rarely produced an effusion in the lungs. "Many experiments have shown that it is not through the par vagum, but through the sympathetic nerve, especially by its spinal roots, which throw themselves into the first thoracic ganglion, that the peculiar influence of the irritated pons Varolii exerts itself, producing a pulmonary hæmorrhage." The condition of the lung, as regards distension or collapse of the air-cells, does not seem to influence the production of hæmorrhage. It is not essential that there be a continuation of breathing. Hæmorrhage is not the only result; an anæmic condition, œdema, and emphysema can also be produced. The latter can occur when not a single respiratory movement takes place after an irritation of the base of the brain, either by crushing or cutting. ('Lancet,' Jan. 7, 1871, 6.)

Tubercular disease of the urinary mucous membrane.—Mr. Thomas Smith writes on this subject, with special reference to the symptoms, &c., during life. He quotes various authorities to show what has been already written respecting the disease, and then explains that his paper refers to what is often called strumous or scrofulous disease of the urinary, mucous membrane, and which commences as a tuberculous infiltration of the submucous tissue of some part of the genito-urinary, mucous membrane (probably most often first in the kidney). To the naked eye it first appears as a yellowish, cheesy deposit, though in its earliest stage it is stated to be a deposit of grey or miliary tubercle. Later on in the disease it is often associated with tubercle of the substance of the testis, the body of the penis, or the prostate. It mostly affects those who are of a tubercular diathesis, and occurs before the middle period of life. He describes the condition of the urethra, bladder, ureters, and kidneys in advanced stages; but we pass on to the *symptoms*:—"Patients suffering with this malady are sure, some time in the course of the disease, to fall under the suspicion of being the subjects of stone; indeed, it would be true of almost all to say that the early symptoms much resemble those of renal calculus, the later, those of stone in the bladder. In the earliest stage of the disease the symptoms may be such as to excite but little attention, and for which medical advice is not generally sought, being, perhaps, a slight aching in the

back, a little blood in the urine, a transient pain in the testicle or glans penis. By degrees the bleeding becomes more copious, the pain in the back more severe, and symptoms of urinary irritation appear, in an increased frequency of micturition, in pain in the glans penis, in the bladder, or in the perinæum. In children there may be, before passing water, shrieking, shuddering, and pulling the foreskin and pinching the glans penis, the child sometimes finding a temporary relief after the water has passed. In the later stages of the disease the pain in the bladder and the urinary distress is most severe, and there is tenderness in the hypogastrium. The urine, which from the first is usually alkaline, may contain nothing abnormal but blood and broken-down epithelial scales. After a time it comes to be loaded with pus, and to be offensive. I have observed that the qualtity of the urine is liable to great variations, that it may, at one time, be full of blood, at another, free from it; that the pus may disappear and again reappear. Abscesses may form in the loins, prostate, vesiculæ, perinæum, body of the penis, or testicle; and these are preceded, in the last-named organs, by deposits of tuberculous matter, which may be recognised as indurations or lumps some time before the formation of matter. Urinary abscess or extravasation is not rarely the result of these suppurations. In a case (a boy) under Mr. Wormald's care, in addition to very severe urinary symptoms, phosphatic deposits could be detected with a sound in the mucous membrane of the bladder. The blood in the urine may be bright coloured, as from the bladder, or coffee-coloured, as in stone in the kidney; it may be largely increased in quantity by exertion or shaking, jarring movements of the body. As before mentioned, in some stages of the complaint, the subjective symptoms are identical with those of stone; in no case, therefore, where tuberculosis is suspected, can the diagnosis of the disease be confirmed until the non-existence of stone in the bladder be ascertained by physical examination, and until, by watching the progress of events, the existence of renal calculus is negatived." He narrates the case of a man, æt. 35, whose symptoms began with pains in the back, followed by irritability of the bladder and frequent micturition, with hæmaturia. After eighteen months, "pain commenced in the bottom of the bladder," followed by pain in the penis and most acute pain in the glans, especially just at the moment the bladder was being emptied. The tenderness in the perinæum was so great that he could not sit. At this time the urine was bloody, purulent, and full of mucus. No stone could be found. He died after three years. Changes (detailed) were found in the kidneys, ureters, bladder, and prostate. One patient was under observation many years. Another, a boy, æt. $4\frac{1}{2}$, died in about four months. He had urinary symptoms, and a tumour was felt below the right kidney. After death this was found to be, probably, due to a deposit in the ureter. The chief changes were in the kidneys. The case of a lad, æt. 14, is noted. Mr. Smith calls attention to the similarity between the symptoms and those in pulmonary mischief. On the one hand, suppuration, hæmoptysis, increased secretion of mucus, with the occasional recurrence of a spasmodic, expulsive, muscular effort (in the form of cough). On the other, suppuration, hæmaturia, increased secretion of mucous, with spasmodic

expulsive contractions of the bladder. Particulars of a case, in a man æt. 29, and in a girl, æt. 2½, are also given. *Treatment.*—"From the urgency and painful nature of the symptoms of this disease, it is obvious that these must be treated as they arise, though it is necessary and beneficial to use constitutional remedies. I believe opium or morphia to be most useful for the relief of pain, astringent preparations of iron and confection of black pepper to be most efficacious in controlling the bleeding, and cod-liver oil and iron to be the best as constitutional remedies. ('St. Barth. Hosp. Rep.,' viii, 95.)

Fatal, urethral fever after catheterism.—Mr. W. M. Banks writes on this subject. The attacks may come on very quickly after slight interference with the urethra, and may terminate fatally in a few hours, or may be deferred for a longer period, and death may not ensue for several days. The affection is essentially due to some shock to the nervous system, possibly the sympathetic, nervous system. An interesting feature is the non-secretion of urine in many cases. The patients retain consciousness. He mentions a case in which a man died in a few minutes after the passage of a catheter. He quotes the cases he has found recorded in the medical journals for the last twenty-five years, and details a typical case in which, after successive trials on different days with small bougies, at last a No. 4 metallic bougie was passed into the bladder. In half an hour the man vomited, then a rigor followed. He continued to vomit, complained of pain in the region of the bladder and loins; the pulse became quicker. In six hours and a half he had a sort of convulsive tremor, his appearance altered, he became unconscious, and died in a few minutes. The autopsy revealed no special lesions. ('Ed. Med. Journ.,' June, 1871, 1074.)

Improved, flexible catheter for retention in the bladder.—Sir Henry Thompson employs the following modification. Into an ordinary, vulcanised, india-rubber catheter, say about the size of 8, 9 or 10, or more, according to the requirements of the case, a thin German silver tube about four or five inches long, is introduced by the maker, so that the last six inches of the catheter remain as flexible as ever, also about two inches of the anterior part to form a spout or conductor outwards for the urine, this being done, the calibre of the interior is still nearly uniform, the thinness of the metal tube and the elasticity of the india-rubber being so accommodated to each other as to accomplish this object. The instrument is furnished with a silk cord to fasten it, which owing to the metal tube cannot diminish the choke or diameter. The advantages of this catheter are several; (1) It is easier to pass as the metal tube affords a handle. (2) When the loop of silk is loosely tied behind the glans it is next to impossible for the instrument to escape, the want of flexibility in the silvered part securing this. (3) The flexibility and unirritability of the part remaining in the bladder is a great advantage. ('Lancet,' Feb. 11, 1872, 185.)

A new, self-retaining catheter.—Mr. J. H. Wright describes and figures a new catheter. It is made by Weiss. There are no wings, the opening is in a convenient position for the escape of the urine, mucus, &c., from the bladder, and cannot be closed by the bladder. The catheter is flexible, and is introduced pulled tight on a stylet. When it is in

the bladder the stylet is removed, and a bulbous portion projects in the bladder. ('Lancet,' Nov. 9, 1872.)

Vertebrated, prostatic catheter.—Dr. Squire advocates the use of a silver catheter, the distal part of which is formed of joints. It is quite flexible and is adapted for cases of enlarged prostate. A figure is given. ('Am. Journ. Med. Sciences,' Oct. 1871, 393.)

Dr. Sayre figures and describes his *vertebrated catheter and probe* in the 'Brit. Med. Journ.,' July 22, 1871. It is composed of a number of segments, is introduced quite flexible and is then stiffened.

Stricture of the urethra.—Mr. W. Stokes records a hundred cases treated either by gradual dilatation, external urethrotomy, internal urethrotomy, or forced dilatation. He thinks the former the most satisfactory mode of treatment when possible. His mode of performing external urethrotomy was to pass a full-sized silver catheter down to the stricture, make a median incision in the perinæum, reach the end of the catheter, feel the stricture, divide it carefully, and then having reached the dilated part of the urethra pass a flexible catheter into the bladder. In order to bring the catheter through the anterior part of the urethra, Mr. Porter suggested the following plan. Take the ivory head of the flexible catheter away, pass a bougie down the urethra, bring it out at the wound and fix it firmly into the catheter, and then withdraw the bougie pulling the catheter with it. He has found internal urethrotomy very successful. He uses Maisonneuve's instrument. A filiform flexible bougie is passed through the stricture, and pushed on into the bladder carrying after it a curved, grooved director on which is passed the cutting instrument, so fashioned that the healthy urethra cannot be cut, only the stricture. He thinks this plan far preferable to forcible rupture of the stricture. Cases are given and figures of the instruments employed. ('Dub. Quart. Journ.,' Feb. 1871, 1.)

Stricture of the urethra; orchitis; pyæmic symptoms; perineal section; recovery.—A man was admitted under Mr. Hulke's care with orchitis. He had repeated rigors; a stricture was detected and perineal section was performed. The man then did well. ('Lancet,' Nov. 9, 1872.)

A case of *complicated stricture of the urethra* treated by Mr. Syme's operation for impermeable urethra, is recorded by Mr. Christopher Heath. ('Clin. Soc. Trans.,' iv, 121.)

Retention of urine from *impassable stricture, treated by filiform bougies.* By W. F. Teevan. ('Clin. Soc. Trans.,' iv, p. 124.)

Sir Henry Thompson contributes a second lecture to the 'Lancet' (Dec. 7, 1872), on *stricture of the urethra.* He thinks Holt's operation generally involves but little risk; the benefit is not very enduring. He describes a plan introduced by Dr. Corradi and figures the instrument. Internal urethrotomy is said to give the best results of any plan. He prefers Civiale's instrument; the incision should be free. He has performed two hundred operations.

A new stricture dilator.—Mr. Berkeley Hill describes a new stricture dilator. The two halves of a split sound, which in juxta-position equal the calibre of a No. 2 or 3 catheter, can be separated by thrusting between them a segment of a cone fixed on a slender stem. It is of

simple and cheap construction. Cases treated are narrated. ('Brit. Med. Journ.,' Sept. 23, 1871.)

Incontinence as a symptom of retention of urine.—Mr. Hutchinson writes on this point and mentions cases. ('Brit. Med. Journ.,' Jan. 21, 1871, 60.)

Persistent priapism.—See cases 'Bien. Ret.,' 1867-8, 317. Dr. Mackie records the case of a gentleman, æt. 70. After much treatment, without effect, a free incision was made into the corpus cavernosum, commencing at the corona glandis. Clotted venous blood escaped and bleeding followed; the patient was relieved. The acute symptoms had lasted three weeks. Effusion of blood into the structure of the corpus cavernosum was finally suspected. The treatment was so successful that the author recommends its early adoption in like cases. ('Edin. Med. Journ.,' Nov. 1872.)

Urinary fistula of the penis treated by urethroplasty.—Mr. John Wood publishes a clinical lecture on this subject. ('Brit. Med. Journ.,' Aug. 24, 1872.) See also Mr. Pemberton's address on surgery ('Brit. Med. Journ.,' Aug. 10, 1872), and a note by Mr. J. R. Lane on antescrotal, urinary fistula. ('Brit. Med. Journ.,' Aug. 24, 1872.)

Epithelioma simulating bubo.—At a meeting of the K. K. Gessellschaft der Aerzte in Vienna in January, 1871, Dr. Geber related the case of a man, æt. 28, who had an epithelioma in the right groin. The patient had excoriation after sexual connection, which was followed by enlargement and induration of the inguinal glands. Antisyphilitic treatment was employed, and it was only when this failed and the disease continued to spread, that it was suspected that the case might be one of epithelioma. Microscopic examination confirmed the latter opinion. Dr. Geber also related another, similar case, in which the differential diagnosis between syphilis and epithelioma was attended with difficulty, and was only cleared up by microscopic examination. ('Wiener Med. Wochenschr.,' No. 4, 1871.)

Orchitis from irritation in the prostatic urethra.—In a clinical lecture on this subject, Mr. Hutchinson details various cases in which orchitis, terminating in suppuration and requiring incisions, occurred in connexion with the passage of prostatic catheters, lithotrity, lithotomy, &c. It is rare in connection with lithotomy, occurring once in about forty cases. He then remarks, "these instances of inflammation of the testis in association with some source of irritation existing in the urethra, are of great clinical interest." We may have (1) inflammation of the vas deferens only, as evidenced by deep-seated pain in the iliac fossa and swelling in the inguinal canal. This may subside and the patient may get well without any further symptoms. (2) In connexion with inflammation of the vas deferens an abscess may form over its course, and may require to be opened through the abdominal wall, or may present at the external ring. (3) The inflammation may involve the whole vas deferens and extend to that portion of the testis which is directly continuous with it, viz. the epididymis, leaving the gland itself unaffected. In a fourth group of cases the epididymis, body of the testis itself, the tunica vaginalis, and the cellular tissue of the scrotum are all involved. In these cases the effusion is usually serum only and a speedy and com-

plete cure by absorption may be expected; but, in exceptional cases, suppuration may occur in the cavity of the tunica vaginalis, and in others, still more exceptional, in the body of the testis itself. He alludes to gonorrhœa as causing epididymitis, and then asks, "What is the connexion between prostatic irritation and orchitis?" He thinks it due to the direct communication of the tube of the vas deferens with the structures concerned; he disbelieves in the mere sympathy theory. "I believe that whenever there is pain in the cord, that pain begins before the epididymis is affected; and I believe, further, that if the vas deferens be carefully examined you will almost always find clear proof that it is thickened and inflamed." In support of his view he insists on the following facts:—(1) That, as already stated, in a vast number of cases there is conclusive proof that the vas is involved. (2) That in a few cases the opportunity occurs for observing that the vas is inflamed before the testis is involved. (3) That now and then the inflammation begins and ends in an inflammation of the vas and never gets to the testicle at all. (4) That according to the admission of all surgeons the orchitis begins in the epididymis—*i.e.* in the part directly continuous with the vas deferens—a fact which the theory of sympathy cannot in the least explain. Against the theory of the direct extension is the fact of the extreme rarity of symmetrical orchitis. The affection may alternate ("see-saw orchitis," Ricord) from one to the other testis, but is very rarely seen in both at once. The subsidence of the discharge on the appearance of the orchitis may be due to sympathy, or, as Dr. Humphrey points out, to the efficient counter-irritation caused by the orchitis. Mr. Hutchinson agrees with Dr. Humphrey that so long as the discharge lingers the patient is liable to swelled testicle, and, therefore, treats the discharge vigorously in all stages. As regards treatment of severe cases Mr. Hutchinson says, "when the pain is intense, and when it persists in spite of the use of ice, I believe that the practice of incisions is not only safe, but very valuable." In slight cases incisions, if harmless, are unnecessary. In cases in which abscess is threatened an incision cannot be made too early. "A free incision into the tunica vaginalis leads to no ill consequence, whatever, excepting the inconvenience of suppuration of the sac; and if you chance to let out the pus the relief is immense. A free incision through the tunica albuginea into the testis itself does not lead to gangrene of the testis, nor always, even, to fungous protrusion. When the testis is swollen it appears to relieve pain, much with the same certainty that iridectomy does in acute glaucoma, and my impression is that it is likely in critical cases to diminish the danger of gangrene on the one hand, and of consecutive atrophy on the other." ('Med. Times and Gaz.,' April 15 and 22, 1871, 419, 447.) Dr. Garden mentions in detail cases in which orchitis followed lithotomy in India. ('Med. Times and Gaz.,' July 29, 1871, 126.) His proportion has been about one in fifty-two; the left side seems more often affected, in connexion with the incision. In five out of sixteen cases mentioned it is noted that abscesses formed.

Enlargement of the prostate gland.—Mr. Quain writes on some forms of enlargement of the prostate gland. In one case, a patient, æt. 68, had very little trouble if he was careful to pass water frequently enough,

but if he overstayed the time he almost certainly had an attack of retention. He finally died of idiopathic erysipelas. The bladder was found to be in great part filled with a firm tumour which reached above the pubes. A section of the whole having been made the tumour was found to be the prostate gland enlarged in an unusual position, above the urethra instead of below it, as is common. The upper end was conical and inclined the urine towards the urethra. The bladder proper was almost wholly within the abdomen. When he had attacks of retention, during many years, one passage of the catheter relieved him till his next attack. No urine constantly remained behind in the bladder, nor did the kidneys become affected. Engravings are given and notes of other cases. In one case, besides an enlargement of the prostate, a large sac bulged backwards from the bladder. In another case, general symptoms were occasioned by the accumulation of "residual urine." ('Med. Times and Gaz.,' June, 1872.)

Amputation of the penis for carcinoma.—Dr. Johnson narrates four cases. In one, he saw the patient eleven years afterwards, and in another three years afterwards, and no return had occurred in either case, though the glands were more or less involved at the time of the operation. ('Edin. Med. Journ.,' Sept. 1871, 242.)

Melanosis of the Penis; Amputation. Mr. T. Holmes, 'Path. Trans.,' xxiii, 175.

Inversion of the bladder.—Mr. Croft records a case of inversion of the bladder. The patient was a female infant, æt. 14 months. The bladder was returned. The case did well. Three other cases recorded are quoted. Mr. Croft's case was, in his opinion, complicated with a slight rupture of the walls of the bladder, accompanied by the escape of serous, peritoneal fluid. In the other cases no such accident occurred. ('St. Thom. Hosp. Rep.,' ii, 195.)

Extroversion of the urinary bladder.—Dr. F. F. Maury has operated successfully on two cases. The patients were boys, æt. 8 and 9 years. In each there was a double hernia. His operation consisted in making a curvilinear incision commencing on the outer third of Poupart's ligament, carried down below the herniæ and scrotum to the middle of the perinæum, and thence along the opposite side to a point corresponding to the commencement of the incision. This flap was carefully dissected up, completely denuding the herniæ of their cutaneous covering. A valve like incision was made in one flap so as to allow the penis to slip through. In this way one flap was obtained sufficient to cover in the bladder, then an incision was made transversely across the abdominal walls and a trap-door flap formed. The lower flap was then inverted so as to bring its cutaneous surface in contact with the mucous wall of the bladder. The edges of the lower flap were bevelled, and it was brought under the upper one and fastened by means of the tongue and groove suture of Prof. Pancoast. One boy required two further operations, the other only the first above described. The bladder is now covered in, a small urinal can be used, some urine retained in the recumbent posture, and the cicatrisation has cured the hernia. The testicles are within the abdomen. ('Amer. Journ. of Med. Sciences,' July, 1871, 154.)

Dr. Ashhurst records a case in which he operated by Wood's method. The patient was a girl, æt. 6½ years. The result was very satisfactory. When lying down she could hold her water for two hours, when erect she was obliged to wear some portable receptacle. The aperture which had existed at the lower part of the abdomen instead of showing a raw surface was now in a state of healed cicatrix. Figures are given. ('Am. Journ. Med. Sciences,' July, 1871, 70.)

Successful lithotrity in a case of atony of the bladder.—Dr. Matiejowsky of Prague, relates in the 'Wien. Med. Wochenschr.,' Nos. 18 and 19, 1871, the case of a gentleman, one of his colleagues in the university, who came under his care in October, 1868, on account of stone in the bladder. The disease had been first detected in 1862, and the bladder had gradually fallen into a state of complete atony. The urine, which had to be drawn off entirely by the catheter, was bloody and contained a large quantity of mucus. Under these circumstances, it was considered that lithotomy was contra-indicated, and it was resolved to practice lithotrity, notwithstanding that it is generally said to be attended with much danger when the bladder is in a state of atony. The first operation was performed in October, 1868, and the lithotrity was repeated at intervals on sixty-six subsequent occasions, the last being on January 5th, 1870. The bladder was each time washed out by injecting water into it. The result was that the bladder was freed from stone; the patient recovered from the vesical catarrh; and the urine became healthy. The atony, however, remained, demanding the habitual use of the catheter. Dr. Matiejowsky believes, from an examination of the fragments, that six calculi were broken up and removed. They contained a large quantity of carbonate of lime and phosphates of lime and magnesia, and some uric acid and mucus.

Choice of operations for stone in the bladder.—Sir Henry Thompson has communicated a clinical lecture on this subject to the 'Lancet,' July 22, 1871. He had had twelve cases recently in the wards. In four he performed lithotomy, in eight lithotrity. All the patients recovered. He thinks it most important to choose according to the circumstances of each case. It is unwise to cut all your patients or to crush all the stones. In guiding your choice you must acquaint yourself with—1st, the size of the stone, or the amount of the calculous matter if multiple; 2nd, its composition: 3rd, the age and constitution of the patient; 4th, the conditions of the local organs. A stone which measures 1¼ to 1⅜ in. in its longest diameter is amenable to lithotrity. A stone of which any diameter is 1¾ in. is mostly too large. For a small stone, at whatever the age, lithotrity is the operation. Enlarged prostate rarely opposes any obstacle. Stricture of the urethra should be treated first and then does not oppose any obstacle. If lithotomy be performed, the lateral is always preferable. There were two children amongst the twelve patients. One who had a large stone was cut. The other had a small stone and this was crushed. It was about the size of an orange pip. Sir Henry uses a tube if there be hæmorrhage. The last case was that of a man, æt. 72, who was relieved of a considerable lithic acid mass in eighteen sittings.

High operation.—Dr. P. H. Watson operated on an adult male by

lateral lithotomy. He could not extract the stone. He then made a supra-pubic incision and removed the stone by that means. It weighed four and a half ounces. The patient recovered. ('Edin. Med. Journ.,' Dec. 1871, 557.)

Lithotomy; hæmorrhage.—A case, in a lad, æt. 15, operated on by lateral lithotomy, in which hæmorrhage occurred on the sixth day, and recurred till the eleventh is noted by Mr. Square. The bleeding came on and ceased suddenly. ('Lancet,' May 11, 1872, 648.)

In the case of a boy, æt. 4½, under the care of the present compiler, hæmorrhage occurred on the fifth day. There had been no previous complication; the bleeding came on quite suddenly, after he had had a violent fit of passion and crying; it was so severe as to produce rather alarming faintness, ceased as suddenly as it came on, and did not apparently hinder the child's progress in any way.

Lithotomy.—A paper on *Lithotomy in India* will be found in 'Dub. Quart. Journ.' (May, 1871, 311), by Dr. Curran. Four cases in which the stones were of *unusually large size* are narrated by Mr. Teevan ('Clin. Soc. Trans.,' iv, 84). An analysis of *statistics of lateral lithotomy* by Dr. Keith is continued and completed by the account of the fatal cases in the 'Brit. Med. Journ.,' Sept. 16 and 23, 1871. Seven cases are recorded by Mr. Ensor, of South Africa. Notwithstanding the frequency of hæmaturia and of renal calculi, vesical calculus is rare ('Lancet,' Jan. 27, 1872, 112). Professor Erichsen gives an interesting clinical lecture on several cases on which he operated for *recurrent or multiple calculi* ('Lancet,' March 18, 1871, 369). A clinical lecture on lithotomy, by Dr. Eben Watson, is given in the 'Lancet,' May 4, 1872; of 47 patients operated on by him two only died; he uses Buchanan's rectangular staff. A clinical lecture, by Professor Humphrey, is given in the 'Lancet,' June 1, 1872, and one by Mr. Forster on lithotomy and lithotrity in the 'Lancet,' Oct. 26, 1872.

Rupture of the female bladder.—W. Stokes, in a clinical lecture on rupture of the female bladder, says he could only find notes of five cases (in Mr. Hoüel's memoir). Two others occurred under the care of colleagues of his own, and he adds one case. The patient survived six days and fifteen hours. The rupture was at the anterior part of the fundus. He discusses the diagnosis. He mentions two cases, recorded, of recovery after rupture of the male bladder. ('Brit. Med. Journ.,' March 23, 1872.)

Wound of the bladder in fracture of the pelvis; recovery.—Dr. Bell showed a lad who had fractured his pelvis. When he came under care he could only pass water through a wound on the left side of the abdomen. A probe went straight into the bladder. No catheter could be passed. This was at last accomplished. No more urine came through the fistula and the latter healed. Another case was mentioned where the fistula was on the other side. (Edin. Med. Journ.,' Oct. 1872.)

Lithotomy; removal of a piece of bone from the bladder.—Sir Henry Thompson records the case of a patient on whom he operated for stone in the bladder, and removed a calculus which proved to be bone encrusted with phosphates. The patient was a lad fifteen years of age. Four years previously he had been run over by a cart. On preliminary examination with a lithotrite a piece of bone was removed, and at the operation a larger piece was found. A somewhat similar case, in a man, æt. 40, occurred seven years before. Sir Henry removed fragments of

bone and phosphatic matter by lithotrity. The bone had probably necrosed from the os innominatum as the man had had abscesses about the hip. Figures are given and allusion is made to the other cases recorded. ('Lancet,' June 22, 1872, 851.)

Calculus vesicæ in the female,—Dr. Watson removed a calculus weighing 1120 grains from the bladder of an elderly woman by rapid dilatation. She was able to retain her urine within twenty-four hours of the operation. ('Edin. Med. Journ., 1871, 653.) Dr. Atlee removed a stone weighing 220 grains, and measuring $3\frac{1}{10}$th inches, in its greatest circumference, and $2\frac{8}{10}$ths, in its smallest, from the bladder of a female, æt. 73, by rapid dilatation of the urethra. He used Holt's dilator and a pair of dressing forceps. The patient had no incontinence of urine. ('Am. Journ. of Med. Sciences,' April 1871, 424.) Dr. Long removed a large stone from the bladder of a female, æt. 33, by rapid dilatation. Incontinence resulted for three days. The stone weighed 308 grains, was four and a half inches in its longest and three in its shortest circumference.

A translation of the reports of two cases recorded in the *Hospitals-Tidende* in which vesico-vaginal lithotomy was performed, is given by Dr. Moore in the 'Dub. Journ. Med. Sci.,' April 1872, 353. The first patient was thirty-five years of age; symptoms had existed for five years. A "large" stone was detected. Lithotomy was first attempted, but owing to the hardness of the stone and the pain caused was unsuccessful. Guérin's old apparatus for lateral lithotomy was used (instead of a round or straight director, passed along the urethra) to guide the knife in incising the vaginal wall. The stone was easily removed. An hour later the wound was united with ten silver wire sutures, which were fixed with leaden plates. The urine was drawn off every second or third hour. On the seventh day, five of the sutures were removed. The wound was healed. On the twelfth day the wires were removed. No aperture whatever remained. The other patient was 32 years of age. The stone was of a "tolerably large size." It was found impossible to crush it. The female blade of the lithotrite was employed as a director. After three quarters of an hour had elapsed the wound was closed with eleven sutures (silver wire), which were twisted. A catheter was inserted. The vagina was washed out regularly On the third day catheterisation at regular intervals was adopted. On the ninth day three sutures, and on the eleventh one, and on the fourteenth day the other seven were removed. No gap remained. The nucleus of the stone could not be crushed with the lithotrite out of the body, only the outside crust. In the first case the stone had been crushed into two parts by the lithotrite. Together they weighed 648·1 grains. The length was six centimètres (2·4 in.), the breadth five centimètres (2·0 in.), and the thickness two centimètres (·8 in.). The second calculus was one inch and a half in its longest diameter, and one and a third and one inch in others. Its weight was 254·63 grains.

Rectal lithotomy.—In the 'Vierteljahrschrift für die prakt. Heilkunde,' iii, 1872, Th. Schäffer describes two methods of performing lithotomy through the rectum. He uses for dilatation specula like Sims's, but adapted to the rectum. The operations which he describes

are the recto-vesical, and the lateral recto-prostatic. In the recto-vesical operation, the section enters the bladder at the base of the prostate between the seminal ducts, parallel to the long axis of the rectum. Injury of the spermatic ducts or of the peritoneum may be avoided by operating with care. In the lateral recto-prostatic operation, a nearly semilunar incision with the convexity downwards is made along the border of the prostatic and membranous parts of the urethra; the flaps are dissected from the prostate, and under the guidance of the sound, the prostate is divided as in lateral lithotomy.

Calculous disease.—Sir Henry Thompson contributes a clinical lecture on the prevention of calculous disease. His treatment consists chiefly in careful dieting, avoidance of sugar, alcohol and fat, and the administration of Friederichshalle and Carlsbad waters, saline purgatives. He objects to the alkaline waters generally ordered. ('Lancet,' Jan. 13, 1872.)

Calculus-cholestearine.—Dr. Duncan showed to the Med.-Chir. Soc. of Edin. a cholestearine calculus weighing 390 grains, which had escaped from the umbilicus of a young lady. No spinal symptoms were noticed previously or subsequently. She had had constant discharge from the umbilicus for three years, during which time the calculus was making its way to the surface. ('Edin. Med. Journ.,' June, 1872, 1127.)

Cystine calculi.—Dr. R. Ultzmann describes in the 'Wiener. Med. Wochenschr.,' Nos. 13 and 14, 1871, four cases of cystine calculus, operated on by Dr. von Dumreicher in Vienna. The total number of cases of stone among which these occurred was 105. In three of the cases, the calculus consisted entirely of cystine, and were single; in the fourth, there were three calculi formed of alternate layers of cystine and earthy phosphates.

The first case occurred in 1847, in a healthy man, æt. 24. There had been no hæmaturia. Lateral lithotomy was performed; the stone was broken during removal by the forceps. The patient was dismissed cured on the eighth day. The calculus was of the size of an ordinary walnut, somewhat flattened at the sides, and of a yellowish colour and waxy aspect. It weighed twelve grammes (185 grains.) The second case was that of a boy, æt. 2 years. His mother noticed when he was a year old that he had difficulty and pain in passing urine. On February 17th, 1854, Dr. von Dumreicher operated by the lateral incision, and removed a calculus of the size of a pigeon's egg. The child was dismissed, cured, sixteen days afterwards. The calculus, in the dry state, weighed 4·3 grammes (66¼ grains). Its surface was of a yellow colour, and was found on microscopic and chemical examination to consist of cystine. Section of the calculus, however, disclosed in the centre a waxy, yellow, glittering cystine nucleus of the size of a coffee-bean; this was covered by a layer a line thick, consisting of earthy phosphate with traces of urate of ammonia; over this lay a dark brown thick layer of oxalate of lime, and over this again a layer of pure cystine, one of earthy phosphate, and, finally, an external layer of cystine. The symptoms of calculus returned three months afterwards; and the patient was operated on a second time in January, 1856; on this occasion, two calculi were removed. He was sent home, cured, two

days after the operation. The stones weighed, together, 9·5 grammes (146½ grains). They were, like the former one, formed of cystine nuclei followed by two layers of earthy phosphate and one of cystine.

The third case was that of a boy. æt. 7, who three years previously had had hæmaturia, unattended by any pain; this soon diminished, and a short time after its first appearance he passed *per urethram*, without pain, a yellowish, firm substance of the size of a pea. Some time later he became very restless at night, would spring out of bed if not restrained, and endeavour, but in vain, to pass urine. The next morning he would have no recollection of what had occurred. He had also violent itching over the whole body, which was reported to then have a bronze colour. In the daytime bright coloured urine was frequently passed in small quantities. In the summer his condition improved; but in the winter of 1863, irritation of the extremity of the penis set in. His urine when examined in March, 1864, was found to be straw-coloured, slightly turbid, of acid reaction, and to deposit a sediment containing hexagonal plates of cystine. This, however, was not found in the sediment on subsequent examinations. During the summer he again improved; but in the winter the symptoms became more severe; his fæces were frequently mixed with mucus and blood; there were alternate suppression and incontinence of urine; and he was taken into hospital in May, 1865. On the day after his admission, Dr. von Dumreicher removed, by the lateral operation, a stone about an inch in diameter, weighing about ten grammes (153·4 grains) and consisting entirely of cystine. The operation was followed by a severe attack of cystitis and pericystitis, which, however, was subdued in the course of ten days by inunction of mercurial ointment into the abdomen and warm applications. The urine passed partly through the urethra on the fifteenth day; and the patient was discharged, cured, four weeks after the operation. The fourth patient was a man, æt. 35, who was admitted into hospital in November, 1870, having suffered for two years from pain in the bladder and other symptoms of stone; for nine months he had had constant dribbling of urine. None of his family were known to have suffered from calculus. The patient was thin, and his skin was almost bronze-coloured. The liver was not enlarged, nor was there pain in the hepatic region. On sounding, a hard body, which could not be pushed into the bladder, was felt in the prostatic portion of the urethra. It did not give a very clear sound on being struck, and its surface was felt to be rough; a small portion which followed the removal of the sound, was, on examination, found to consist of cystine. The urine was of acid reaction, of spec. grav. 1007; it was cloudy and yielded a flocculent sediment of pus, together with epithelial cells from the pelvis of the kidney and casts from the tubes of Bellini. The quantity of colouring matter and uric acid in the urine was much diminished; the urea and salts were in normal amount; and there was a good deal of albumen. There was no cystine in the sediment. The median operation of lithotomy was performed on November 17th, and the stone was removed in three pieces with a quantity of detritus; the whole was calculated to weigh forty-five grammes (694¼ grains). The patient went on well for some days;

but, on November 30th, febrile symptoms appeared; diarrhœa set in four days afterwards; and he died on December 12th. The cause of death, as far as the necropsy gave any indication, was general anæmia and hypostatic pneumonia. There was some disease of the parenchyma of the kidneys which had apparently come on subsequently to the operation, and did not seem sufficient to account for death. The suprarenal capsules were healthy, so that the bronzed state of the patient's skin was not connected with disease of these structures.

Treatment of tuberculous testicle by the actual cautery.—M. Verneuil, in a communication to the Surgical Society of Paris, expresses his preference for the actual cautery over all other methods of treatment of tuberculous testis. He introduces conical, or olive-shaped cauteries into the fistulous openings, penetrating the indurated scrotal tissue, and destroying the diseased structure of the testicle. Under this treatment, he says, patients are enabled to leave the hospital in a few weeks. The constitutional disease, however, is not eradicated, and the disease is likely to return in the testis, and extend to the prostate. Cauterization, however, relieves the patient for a year or two, and appears to delay the recurrence of the disease. In the discussion on M. Verneuil's communication, M. Legouest expressed an opinion in favour of castration being performed much more frequently than it is in such cases, and at an early period of the disease. ('Gaz. Med. de Paris,' November 4, 1871.)

Testicle removed for neuralgia.—Mr. Annandale showed a specimen. The pain had existed for six or seven years. No disease was found except slight thickening of the epididymis ('Edin. Med. Journ.,' Sept., 1872).

Cancer of an imperfectly descended testis; difficulty of diagnosis.—Mr. Henry Arnott, 'Path. Trans.,' xxii, 182.

Transition of the testicle into the perinæum.—Mr. James Adams narrates the case of a male infant, aged eleven weeks, who came under his care for a misplaced testis. The right side of the scrotum was normal. On the left side was a pouch, but no testis in it. The left testicle formed a smooth oval swelling in the perinæum, to the left of the middle line, and half an inch in front of the anus. It was quite movable. The cord could not be felt owing to a considerable thickness of fat. Mr. Adams operated by making an incision about an inch and a half long, from the external abdominal ring over the empty scrotal pouch, which he carefully opened, thus preparing a bed for the testicle. He then felt for the cord, and having found it, followed it down to the testis, taking care not to injure the tunica vaginalis. On making traction on the cord, it became evident that there was some firm adhesion between the lower part of the testicle and the perineal pouch. This, Mr. Carling suggested, was the gubernaculum. Mr. Adams dissected down to its attachment, and divided it as far from the testis as possible. The testis was then raised, in its uninjured tunica vaginalis, and placed in the scrotal pouch. A catgut suture was passed through the gubernaculum and fixed to the bottom of the scrotum. On the third day the edges of the wound became sloughy, erysipelas followed, and the child died at the end of a fortnight, apparently of exhaustion. Reference is made to the other two cases on record, and Mr. Adams remarks, the chief

arguments adduced in favour of early operation are:—1. That the scrotum will not develope on the empty side, and that in the course of a few years it will become an impossibility to cover the organ with it. 2. That, as nearly all testicles found in abnormal situations are atrophied, there is a chance of the gland itself becoming useless. 3. It has been asserted that its position is inconvenient and painful, and that it is liable to injury. The first of these propositions is undoubtedly true. The gland, however, does not invariably atrophy, as in Mr. Ledwich's case it was of normal size, and contained spermatozoa. The patient may attain adult life without experiencing any inconvenience. He is therefore of opinion that no operation should be undertaken during the earlier periods of life; first, because in very young children the wound must almost necessarily be frequently irritated by the urine, and because of the probability of the potency of the serous membrane; and, secondly, because the malposition may not prove to be of any inconvenience, unless the patient is destined to become an equestrian. ('Lancet,' May 27, 1871, 710.)

Treatment of gonorrhœal epididymitis by ice.—Dr. Borgioni, in a paper published in 'L'Imparziale,' for May 1 and 16, 1872, relates four cases of gonorrhœal epididymitis treated successfully by ice. He does not bring forward the remedy as new, nor does he consider the number of his cases sufficient to warrant his saying that it is always efficacious; but, as far as he can judge, he believes it simple of application, and capable of effecting an early cure.

Gonorrhœal or urethral rheumatism.—Dr. Bond writes on this subject. He concludes with the following deductions, that urethral rheumatism is a slow form of pyæmic poisoning, due, not to a sudden absorption, but to a gradual vitiation of the blood by progressive absorption of the urethral discharge; that the vitiated state is not maintained independently of the local disease; that when the discharge is thoroughly and permanently stopped, the rheumatism may soon be cured and has no tendency to return, except by the access of a fresh urethral discharge. ('Lancet,' March 23, 1872, 395.)

Vesico-vaginal fistula.—Dr. Joseph Bell records cases on which he has operated successfully. He uses a series of steel points, highly tempered and curved, in various sizes, some not larger than one third of the circumference of a sixpence, others bearing the same proportion to a shilling, but all welded to the silver wire in such a manner as to project no shoulder, and require no threading. These are easily managed either with a Sims' needle forceps, or by an ordinary pair of dressing-forceps, and setting the wire at a right angle to the needle and curving it round the hand and arm, it is readily managed with great ease. He also finds (Sims'?) barbed hooks of great service. ('Edin. Med. Journ.' Jan. 1872, 591.)

Imperforate hymen.—A case in which Dr. Barton operated successfully for retained menses, owing to an imperforate hymen is recorded. ('Dub. Quart. Journ.' Feb. 1871, 62.) The patient was fifteen years of age. The septum across the vagina was divided carefully, and not very freely. It was of considerable thickness. Reunion partially occurred, but was obviated by retention of a piece of oiled lint.

Epithelioma of the tongue treated by the galvanic cautery.—Drs. Andrea Gozzini and Peleo Puccioni relate, in 'L'Imparziale,' (Nos. 15 and 16, 1872) a case in which an epithelioma of the tongue was removed by the galvanic cautery. The patient was Signor Mazzoni, a gentleman aged 64, who had always enjoyed good health, until, in October 1871, he observed an excoriation on the upper part of the left side of his tongue. In course of time, this presented the ordinary characters of epithelioma; and, an operation being decided to be necessary, it was determined to apply the galvanic cautery. The operation was performed on April 10, 1872, in the presence of Senator Prof. Burci and Drs. Casetti and Billi. The tongue was drawn out of the mouth by a double hook passed through the healthy portion, and held by an assistant. The end of a needle was then introduced, which had been made for the purpose; it was in the form of the letter S, channelled on its surface, and carried at one end a platinum wire 1½ millimètre in diameter, and 50 centimètres long. It was introduced into the fold of mucous membrane which is reflected from the base of the mouth on the inferior surface of the tongue, as nearly as possible at a point which left three-fifths of the base on the left side, and two fifths on the right. When the eye of the needle appeared on the upper surface of the tongue, the platinum wire was seized with a forceps, and, having been freed from the needle, one end was drawn out of the mouth and placed in contact with the other end, the needle having been withdrawn in the reverse direction to that by which it entered. The ends of the wire were then fastened down by a *serre-nœud* on the apex of the tongue. The loop was then heated by the galvanic cautery, and in twenty seconds the parts with which it was in contact were distinctly cauterised. The wire was now allowed to cool, and was again tightened; after which the cautery was applied as before. By proceeding in this way, the longitudinal division was effected in eight minutes. The tongue being held aside well out of the mouth, and the angle of the mouth and the cheek held by a blunt hook, and pieces of wood being placed between the molar teeth, the wire was applied transversely, as far back as possible; and the division in this direction was completed in seven minutes. The whole operation occupied seventeen minutes; it was unattended either with hæmorrhage or with flow of saliva. After the operation, the patient rose from the chair on which he had sat, and walked to his bed without assistance. Ice was given him to suck, and he was allowed soup and wine, which he swallowed slowly, but without much difficulty. On the fifteenth day the eschar fell off, after which the salivation, which had become profuse, diminished and soon ceased; and the patient became able to eat solid food. On the eighteenth day after the operation, Signor Mazzoni was able to walk out. During the whole time he had been able to attend to his professional duties as a lawyer, conveying his instructions for some days by means of writing. Microscopic examination proved the epitheliomatous character of the tumour. When the case was reported, three months after the operation, there were no signs of recurrence.

New method of removing the tongue.—Mr. Furneaux Jordan successfully removed the tongue of a patient suffering from carcinoma, by the

mode of incision recommended by Macleod, of Glasgow, combined with a novel mode of using the écraseur. He made the incision by thrusting his knife through the cheek in front of the ramus of the jaw, and then cutting towards the angle of the mouth. The vessels were secured by torsion. He thus obtained free access to the root of the tongue. "The tongue was then seized close to its root between the finger and thumb of one hand, while the other carried under the tongue a strong curved needle, threaded with four pieces of ligature. These drew back through the channel made by the needle the chains of two écraseurs, one after the other. One was fixed so as to divide the tongue near the larynx, the other was to separate it from the floor of the mouth. The instruments were worked simultaneously, and in about seventeen minutes clean removal was effected, absolutely without hæmorrhage. ('Lancet,' April 20, 1872, 540.)

Mr. Annandale removed the *right half of a woman's tongue* by Buchanan's modification of Syme's operation. The patient was 71 years of age. At time of note she was 72, and there was no recurrence ('Edin. Med. Journ.,' Aug., 1872, 678). A successful case in a woman, aged 62, under the care of Mr. Canton, is noted in the 'Lancet' (Jan. 20, 1872, 80). The tongue was drawn down below the maxilla, and divided by an écraseur. Mr. Lee records a case. He divided the jaw, and passed ligatures, in a special manner, through the base of the tongue before cutting it away. No hæmorrhage occurred. The patient recovered. ('Clin. Soc. Trans.,' iv, 114.)

Abscess of the Tongue.—Dr. Pooley records a case of abscess of the tongue in a girl seven years old ('Am. Journ. Med. Sci.,' April, 1872, 385).

Congenital hypertrophy of the tongue.—A case was shown to the Clinical Society by Mr. Lawson. ('Trans.,' v, 158.)

In a case under the care of Mr. Simon *removal of portions with the écraseur* was practised and death followed. Report of the case by Mr. Arnott. ('Path. Trans.,' xxiii, 109.)

In a case of congenital hypertrophy of the tongue which came under the care of Mr. Fairlie Clarke *he used the écraseur* with success. The patient was four months old. The protruding portion only was removed. ('Lancet,' March 30, 1872, 433, and 'Path. Trans.,' xxiii, 111.)

Fatty masses in a ranula—adipocere.—In a case of apparently ordinary ranula, Mr. Waren Tay evacuated five masses, like lumps of firm butter, from a cyst under the tongue. Dr. Tidy pronounced them, from chemical examination, probably in the condition of adipocere. They were not ordinary fat. ('Path. Trans.,' xxii, 258.)

A fatty tumour under the tongue resembling ranula is recorded by Mr. Churchill who gives a *resumé* of other cases. ('Path. Trans.,' xx, iii, 234.)

Fibrous tumour of the tongue.—Dr. Pooley records the case of a young woman (æt. 23), who came under his care for a tumour of the tongue of twelve months' duration. It was hard to the touch, and placed far back. It had a broad base. Bleeding occurred occasionally. It was removed with wire écraseur with some difficulty owing to its density. There was no bleeding. The patient soon recovered. After removal the tumour was as large as a bantam's egg perfectly spherical in form, with a pedicle an inch in diameter, had several stellate cracks or fissures extending through the mucous membrane with which it was covered, which were undoubtedly the source of the repeated hæ-

morrhages. In structure it was a firm fibroid and resembled accurately, as it did also in its symptoms, the well-known fibroid polypi of the uterus. One case is quoted from Paget, another from Cooper's 'Dictionary,' and one from 'Boston Med. Surg. Journ.,' all the author could find. The patients were young men. ('Am. Journ. Med. Sci.,' April, 1872, 385). Dr. Titts records the case of a woman, æt. 30. In examining her throat and while depressing the tongue he noticed a tumour rising up at its base, of about the size of a filbert. It was situated in the median line, so far back that it was difficult to pass the finger behind it. It was exceedingly hard, incompressible and immoveable. It was not apparently pedunculated. In a few months the growth steadily increased in size, and almost filled the whole of the fauces. Prof. Bigelow operated. He removed the tumour with the écraseur. It was pronounced fibrous or fibro-recurrent. At the end of two years there was no recurrence. ('Am. Journ. Med. Sci.,' July, 1872, 122.)

Hysteric or spasmodic stricture of the œsophagus.—Sir James Paget considers this condition the homologue, in the pharynx or œsophagus, of that want of harmony between the organs of speech and respiration which produces stammering and appears to depend on a want of perfect concert between certain involuntary muscles and muscles acting under the control of the will which are designed to act in harmony. In the latter case the muscles of respiration do not act in time and unison with the organs of speech; in the former, instead of the normal contraction of successive portions of the upper part of the alimentary canal from above downwards which transmits the food regularly from the mouth to the stomach, there occurs an unruly contraction of certain fibres which, as long as it continues, bars the passage of food as completely as if some permanent obstruction existed. The degree of this contraction varies in different cases; in some it only compels the patient to take his meals apart or inconveniences him whenever his attention is in any way directed to the act of swallowing: while, in others, it produces contraction so obstinate and complete that the maintenance of life by means of gastric digestion is wholly prevented. In these cases recourse must be had to enemata, and it will be found necessary to make use of something more than beef tea and brandy, and by injecting preparations containing fats, starches, sugars, and vegetable as well as meat juices, to supply all the ingredients which are contained in a natural diet, and are essential to the building up of the various tissues of the body. Of the fact that vegetable juices could thus be effectually introduced into the system, he had recently had very satisfactory proof in the case of a patient with whose nutritive enemata some of the essence of water cresses proposed by Mr. Wyatt had been introduced. At the end of a few days the patient had begged that the quantity of the essence might be diminished, because the flavour of the vegetable in his mouth had become so strong and so constant as to be extremely disagreeable. ('Lancet,' Jan. 7, 1871, 11.)

Resection of the œsophagus.—In an article in the 'Archiv für Klin. Chirurg.' (Band xiii, 65), Dr. Billroth suggests that this operation may be found practicable in cases of cancer of the œsophagus. He remarks

that the disease is generally limited to one part, and that attempts at dilatation often only increase the evil by tending to ulceration. He suggests that after removing the diseased portion (if the cancer be situated sufficiently high), the resulting cicatrix would be capable of distension by bougies; and that the healing powers would be analogous to that which takes place in the urethra after the loss of a portion of this canal by ulceration, sloughing, or injury. From a large dog, Billroth removed an inch and a quarter of the œsophagus, and united the lower end of the tube to the skin by two sutures, so as to allow the introduction of a tube through which milk was to be conveyed into the stomach. On the fifth day, it was found possible to introduce a tube through the mouth; at first it had to be guided along the wound by means of the finger, but afterwards this became unnecessary. The sutures were removed a week after the operation. There was at first a great discharge of mucus through the wound; this gradually decreased, the opening became smaller, and in two months entirely closed; and an œsophageal bougie of the size of a large index finger could be readily passed. The dog was fed with meat, potatoes, &c., and throve well. A little more than two months after the operation, it was killed; the cicatrix was found to be annular, scarcely half a line wide, and readily distensible.

Foreign bodies impacted in strictured œsophagus: œsophagotomy.—Dr. Menzel relates, in the 'Archiv für Klin. Chirurg.' xiii, 678, the cases of two children, patients in the General Hospital in Vienna, in whom stricture of the œsophagus had been produced by swallowing irritant fluids, and in whom also foreign bodies subsequently became impacted in the strictured portion. The first patient was a boy aged 6, who, a year previously, had swallowed some strong lye, in consequence of which great narrowing of the œsophagus occurred. He was brought into hospital on account of having swallowed a brecches button. Dr. Billroth removed this by œsophagotomy, and the patient was discharged, with the external wound healed, on the twenty-first day after the operation. The second patient, a girl, had strictured œsophagus, the result of swallowing nitric acid, and was unable to swallow solid food. She was brought to the hospital on account of having been for ten days unable to take any food whatever through the mouth. A slender œsophageal tube, however, was passed, through which some milk was introduced. After this, the condition varied; sometimes deglutition was tolerably easy, sometimes quite impossible; on some occasions a bougie of moderate size could be passed, while on others this could not be done, and it occasionally seemed as if a foreign body were struck, though this could not be distinctly made out. The child gradually lost strength, became feverish, and died on the forty-eighth day after admission. At the necropsy, there was found in the œsophagus a semilunar aperture leading into a cavity in the submucous tissue, in which lay a blue glass bead, of the size of a pea. A narrow, fistulous canal led from the bottom of the cavity to a collection of pus in the mediastinum. There was also purulent effusion in the right pleural cavity. Dr. Péan relates in the 'Tribune Médicale,' January 21, 1872, the case of a boy, aged 8, who had a peach-stone impacted in the œsophagus beneath the

manubrium sterni. Œsophagotomy was performed, but the foreign body could not be reached. The connective tissue between the œsophagus and trachea was carefully torn by the finger to the extent of about 3 centimètres, till the mediastinum was reached. The sharp end of the peach-stone was now felt, and the foreign body, having been brought into a favorable position, was pushed into the œsophagus and removed. The wound in the œsophagus healed within a fortnight.

Removal of an artificial plate with false teeth from the œsophagus.—A lady in an epileptic fit swallowed a tooth-plate. At first it could not be felt from the mouth, but after some time could just be detected. At the end of about twenty-four hours Dr. Matthews succeeded in tilting up one end as it lay across the œsophagus, and then extracting it. ('Lancet,' May 13, 1871, 643.)

Passage of an artificial tooth-plate along the alimentary canal.—Mr. Henry Smith was called to see a corpulent butcher who had swallowed an artificial plate, with two teeth, and projecting hooks on each side. Mr. Smith tried to withdraw the foreign body which he could just feel, but failed in his attempts, and therefore decided to push it into the stomach. This he accomplished. Nine days later the plate passed per anum. ('Lancet,' April 1, 1871, 440.)

Hæmorrhage from internal wound of œsophagus—operation.—Mr. Annandale records the following case:—A lady, aged 52, while dining, swallowed a bit of bone which she felt lodged in her throat. A few streaks of blood were noticed to pass by the mouth. The day after a small swelling formed over the inner border of the left sterno-mastoid, about the middle of the neck. On the fourth day this was still evident, hard to the touch, and about the size of half a small walnut. An ivory-headed probang passed down the œsophagus struck against some hard substance on the left side, immediately opposite the swelling in the neck. This hard substance could not again be felt. The pain and difficulty in swallowing had vanished. The next day only a slight *soreness* was felt in swallowing. On the twelfth day hæmorrhage occurred suddenly from the mouth. The blood brought up was arterial and unmixed, except with a little saliva and mucous. The hæmorrhage recurred after some hours and it was decided to cut into the neck, with the hope of discovering and removing the source of the hæmorrhage, which appeared to be connected with the lodgment of the foreign body in the œsophagus. An incision was made on the left side of the neck, as if for tying the common carotid below the omo-hyoid, and the artery having been exposed, a ligature of catgut was passed loosely round in order to be in reserve. A careful dissection was then made to the inner side of the artery, so as to lay bare the œsophagus, with the result of exposing a wound of this canal. The wound was a quarter of an inch in length, situated in the left side, and passed completely through the walls of the canal; its edges were somewhat ragged, and a continuous oozing of arterial blood occurred from them. A very fœtid odour was noticed. No foreign body could be detected. A small artery was found entering the œsophagus close to the wound. This artery passed upwards from underneath the carotid, and was, from its situation and direction, considered to be a branch of the inferior thyroid artery. A

ligature passed round this small branch at once stayed the bleeding. The margins of the wound were freely touched with tincture of muriate of iron, and the edges of the wound in the neck were brought together with sutures. The patient was fed by a tube. The wound became unhealthy looking, slight hæmorrhage occurred, checked by iron. The patient gradually became weaker, and died nine days after the operation. No *post-mortem* was allowed. Mr. Annandale remarks, "The history of the case, the detection of the foreign body by means of the probang, and the condition determined at the operation are, I think, sufficient proof that a sharp fragment of bone had lodged in the œsophagus, and wounded its walls. This wound had been followed by ulceration, which, in its progress, had involved the arterial branch and caused the hæmorrhage. It seems probable that my first introduction of the probang displaced the bone, and that this accounted for the relief of the symptoms and the disappearance of the inflammatory swelling in the neck. Had the bone remained in its original position, an abscess, pointing externally, would have been the result. From the fact that no difficulty in swallowing was experienced after the introduction of the probang, it is likely that the bone passed down into the stomach. Had I not possessed a clear history of this case, and had I not also distinctly felt the bone and ascertained its position, operative interference would scarcely have been justifiable; for although the blood was evidently coming from the pharynx or œsophagus, it was impossible to be certain as to its exact source." "The discovery that the wounded vessel was not a branch of the carotid, but of the subclavian artery, is an excellent, but, at the same time, rare illustration of the important principle in the treatment of wounded arteries, namely, to search for the bleeding-point itself and secure it, if possible. Ligature of the carotid artery, in this case, could have had no influence in restraining the hæmorrhage from the bleeding vessel." The progress of the case, for the first few days, was all that could be desired. The fact that the patient had been hemiplegic for some time on the left side, and was not in a good state of health, tended to diminish her chance of recovery. The bleeding after the operation was only from the sloughy edges of the wound in the neck, not from the œsophagus, and blood never came by the mouth. ('Edin. Med. Journ.,' April, 1872, 880.)

Radical Cure of Inguinal Hernia.—Professor Fayrer records cases ('Med. Times and Gaz.,' April 6, 1872).

Herniotomy.—Mr. Erichsen operated on a *male infant, aged six weeks* for strangulated inguinal hernia. The child recovered from the operation, but died a month later from pleurisy and peritonitis. ('Lancet,' May 18, 1872.) Mr. J. D. Hill performed herniotomy in a case of congenital scrotal hernia in *an infant eighteen months old.* Strangulation had existed twenty-four hours. The sac was not opened. The baby recovered. ('Med. Times. and Gaz.,' April 8, 1871, 395.)

Sir James Paget has contributed Clinical Lectures on *Strangulated Hernia* to the 'Brit. Med. Journ.,' i and ii, 1872.

Direct Inguinal Hernia in the Female.—Mr. Squire, 'Path. Trans.,' xxii, 148.

Strangulated Femoral Hernia; reduction in masse.—Reported by Mr. Morris, under the care of Mr. Lawson. ('Path. Trans.,' xxii, 148.)

Catgut sutures to the tendinous openings in hernia.—Mr. Lister has successfully employed catgut sutures in stitching up the tendinous openings in operating on ventral and umbilical herniæ. (Address, 'Brit. Med. Journ.,' Aug. 26, 1871.)

Strangulated Umbilical Hernia; operation; sac opened; recovery.—Dr. Arnison mentions two cases. ('Lancet,' Nov. 2, 1872.)

Incarcerated scrotal hernia; operation; artificial anus: recovery.—The case of a man, æt. 63, under Mr. Hutchinson's care for hernia presented features of interest. The hernia was *incarcerated* from impaction of fæces; there was an absence of strangulation, and yet the bowel was sloughing. There was no vomiting and no constipation, but the prostration was extreme. Great relief followed the operation. The right scrotum was enlarged, swollen, tender, and of dusky red hue. On incision, the hernial sac was found distended and fluid was let out. The neck was quite free. The intestine contained a large mass of fæces of almost stony hardness and was sloughing at one part. The mass was turned out and the margins of the bowel stitched to the edges of the wound. The artificial anus gradually closed. ('Lancet,' Aug. 24, 1872.)

Treatment of strangulated hernia by puncture of the intestine.—In the 'Med. Times and Gazette,' April 20, 1872, Mr. Bryant records the case of a man, æt. 71, the subject of strangulated scrotal hernia and upon whom he performed herniotomy. It was necessary to expose the bowel in order to return it. Owing to the restlessness of the patient, however, the gut again descended in a few hours, and all attempts to reduce it failed, until the large intestine was punctured in four or five places with a grooved needle and a quantity of flatus let out. The patient recovered without any bad symptom. Mr. Bryant advocates puncturing the intestine in certain cases of hernia. He thinks it possible that some herniæ may be reduced without any cutting operation at all. He intends trying puncture in large scrotal and umbilical herniæ, and thinks the plan adapted for all cases of acute internal strangulation, due possibly to bands or twists. In the 'Med. Times and Gaz.' for Aug. 3, 1872, two cases of strangulated hernia treated successfully by puncture are referred to.

Use of the aspirator for puncture of the intestine in hernia.—Dr. Léon Labbé records a case of strangulated inguinal hernia in a man, æt. 70, in which aspirating puncture of the intestine was employed. Fluid and gas escaped, immediate reduction was effected, and the patient was cured. ('Lancet,' July 20, 1872, 78.)

M. Demarquay related to the Academy of Medicine, in May, 1872, the case of a young man, to whom he was called, suffering from strangulated congenital hernia. M. Demarquay saw him on the second day after the symptoms of strangulation had set in, and attempted to reduce the hernia by the taxis, but without effect. He then applied Potain's aspirator, and withdrew from the intestine about 120 grammes of liquid. After waiting for a few minutes to see whether the swelling, which had gone down, would return, he easily replaced the intestine in the abdomen by pressing gently from below upwards. The patient was treated by rest, small doses of opium, and low diet; and made a good

recovery, the only disturbance of any kind being inflammation of the testis in consequence of the pressure to which it had been subjected. M. Demarquay says that the treatment of hernia by aspiration is indicated in the following circumstances:—1. In all congenital herniæ, or in recent herniæ which have become strangulated at the moment of their formation; 2, in old herniæ that were perfectly reducible a few days before strangulation took place; and in recently strangulated, large, umbilical herniæ. The operation, he says, should be performed only at an early period, when there is reason to believe that the intestine has not yet undergone any destructive change. ('Bull. Général de Thér.,' 13, 1871.)

Mr. Jessop says, "I remember the late Mr. Teale, in 1860, while introducing an acupuncture needle twenty or thirty times through the abdominal walls in a case of excessive tympany following herniotomy, remarking to the students around him that, in his early days, he had been accustomed, under similar circumstances, to use the trocar after the manner of veterinary surgeons; but that, of late years, he had preferred the acupuncture needle as being at the same time less dangerous and equally efficient." Mr. Jessop has used the aspirator with satisfactory results on several occasions. ('Brit. Med. Journ.,' Dec. 7, 1872.)

Diaphragmatic hernia.—Dr. A. Popp, in the 'Deutsche Zeitschr. für Chir.,' Band i, has collected forty-two cases of diaphragmatic hernia, adding two observed by himself. He arrives at the following conclusions:—The œsophageal opening very rarely gives passage to the hernia; in most cases, there is an abnormal cleft in the œsophagus, either congenital or the result of injury. The hernia is generally on the left side; an aperture on the right side being covered in by the liver. The causes of injury were, stabs in twenty-one cases; gunshot wounds in three; falls in ten; and in three, the causes were, respectively, violent exertion, a fall with a violent twist of the body, and the being run over by a carriage. In most cases, the hernia was formed of the stomach, transverse colon, or a portion of the omentum. In five cases, the hernia was in the right pleural cavity, in thirty-two, in the left. The diagnosis is difficult, but may be aided by the history of the case and by auscultation and percussion.

J. Sargent relates a case of diaphragmatic hernia in the 'Boston Med. Surg. Journal' for February 22, 1872. In 1851, a woman, named S—, was injured by the handle of a hay-fork, which entered the vagina and broke the first rib on the left side. She recovered, and died in 1871 of peritonitis. At the necropsy, the left pleural cavity was found to contain, besides the compressed lung, the stomach, the transverse colon, several inches of the descending colon, and a considerable portion of the small intestine. In the left half of the diaphragm was an irregular opening four inches in diameter.

Obturator hernia.—Dr. Chione describes the conditions found by him in the body of a woman, æt. 73, in the dissecting room. On opening the abdomen, a portion of the ileum was found strangulated in the opening at the upper part of the obturator foramen. On dissecting downwards, among the adductor muscles of the thigh, a sac, the size of a pigeon's egg, was exposed. It was brought fully into view by cutting

through the pectineus and dissecting off a layer of fascia derived from the muscular fascia of the obturator externus. It had passed through the obturator canal displacing, in its outward passage, the upper fibres of the obturator externus muscle. The artery lay between and was separated from the sac by a ligamentous band. The nerve lay in front. The sac contained the outer two thirds of the Fallopian tube and two inches of the ileum. The bowel was gangrenous and had given way. The round ligament passed in front, above the opening. The ovary was compressed against the wall of the pelvis immediately below the opening. The sac was formed of the broad ligament. Dr. Chiene's explanation of the occurrence of this hernia is, "In the broad ligament of the uterus, in health, a slight *cul de sac* will be observed between the round ligament and the Fallopian tube; a knuckle of bowel pressing downwards in this position had caused a separation of the layers of the broad ligament; the pressure being continued, the bowel had passed through the obturator canal, necessarily pushing before it a sac formed of the peritoneum of the broad ligament, the Fallopian tube being carried into the sac along with the peritoneum. On the opposite side were two obturator herniæ, an anterior sac formed of parietal peritoneum, the opening admitting the tip of the little finger and passing in front of the round ligament, and a posterior one, similar to that on the other side, containing the outer half of the Fallopian tube. A sketch of the parts is given. The points of interest are that it was a case of triple obturator hernia, and that in two of the herniæ the sacs were formed of the peritoneum of the broad ligament. Dr. Miller gives some particulars of the patient's clinical history. He had operated on her, rather less than twelve months before, for strangulated femoral hernia, successfully. At the post-mortem examination, detailed above, very little trace of this could be found. He was called to see her again shortly before her death. He could find no hernial tumour, but she had symptoms of abdominal obstruction and was very ill. She had delayed sending as she dreaded another operation. The idea of gastrotomy suggested itself, but was dismissed owing to the patient's great age and low condition. ('Ed. Med. Journ.,' Jan. 1871, 601-3.)

A case is noted ('Lancet,' June 22, 1872) under the care of Mr. Erichsen. There were no symptoms to lead to the diagnosis. After death, with symptoms of obstruction, a small hernia was found. Detailed notes are given.

Hernia of the ovary.—Dr. J. Englisch describes ('Jahrbüch. der K. K. Gesellsch. der Aerzte in Wien,' 1871) three cases of ovarian hernia, and makes some remarks on the affection. Exclusive of the cases in which the uterus has been found displaced along with the ovary, there are on record thirty-eight cases of ovarian hernia, twenty-seven inguinal, nine femoral, one sciatic, and one obturator. In one third of the cases of inguinal ovarian hernia, the displacement was on both sides. In seventeen cases, the hernia was congenital; in all these it was inguinal, and all the cases of double hernia were also inguinal. From these facts, Englisch concludes that congenital ovarian hernia arises from an abnormal descent of the ovary, analogous to the normal descent of the testis in the male. Ovarian hernia is frequently combined

with other malformations of the genital organs. Those cases of ovarian hernia which come on at a later period of life must be accounted for by some such conditions as excessive length of the ovarian ligament, bending forward of the uterus, too great an inclination forward of the pelvis, or the drawing down of the ovary with a hernial sac. In congenital herniæ, the ovary and Fallopian tubes are generally present, while acquired hernia usually contains the ovary alone. The uterine end of the Fallopian tube has been found obliterated in most of the cases that have been examined. The displaced ovary was, in fifteen cases, normal; in seventeen, inflamed; in five, it had undergone cystic, and in one, cancerous degeneration. In five cases the hernia also contained intestine. Ovarian herniæ are generally pear-shaped, the neck of the protrusion being very narrow, especially where the organ has undergone degeneration. In the femoral form, the hernia is rounder. It is rarely that any information as to diagnosis can be obtained from the form or the consistence of the swelling. It has been alleged by some observers that the pain produced on pressure extended to the umbilicus, and in a number of cases included uterine colic and pain in the external genital organs. The healthy ovary is always tender. Of the fifteen congenital herniæ, thirteen were irreducible; while, of fifteen cases of acquired hernia, in three only could the ovary not be returned into the abdomen. In some cases pain is described as having been produced by dragging on the uterus, when the patients lay on the side opposite to that of the hernia. In single ovarian hernia, the uterus is generally inclined towards its affected side. The symptoms produced during menstruation are very striking, and afford important aid in the diagnosis. In some cases, however, these have been wanting, and here the uterus has been absent. Before the menstrual discharge commences, the patient feels pain in the hernia, which also increases in bulk. In many cases there have been also eructation and vomiting, nearly leading even skilful surgeons into the error of supposing that they had to deal with strangulation. In one case, in which pregnancy occurred, the changes in the hernia at the menstrual periods were arrested during this condition. Inflammation of ovarian hernia may be traumatic, or may accompany menstruation. Englisch observes that even in omental and intestinal hernia the period of strangulation often coincides with that of menstruation; and he believes that the congestion, which affects not only the ovary but the peritoneum, may in certain cases give rise to the phenomena of incarceration. When an ovary that has undergone cystic degeneration becomes gangrenous, it may readily be confounded with gangrenous intestine. The vomiting which often accompanies inflammation of a displaced ovary, is ascribed by Englisch to a sympathetic affection of the intestine, and not, as has been supposed by Mülert, to compression of the intestine against the overstretched edge of the broad ligament. In inflammation of an ovarian hernia, the abdomen is usually less distended, and the countenance less anxious than in ordinary strangulated hernia. When an ovarian hernia suppurates, the abscess very rarely bursts into the abdomen. When there is strangulated intestine, at the same time with the ovary, in the hernia, the symptoms are increased in severity. The condition of the stools

will give the most certain aid in the diagnosis; which, however, is often very difficult. Of twenty cases in which symptoms of incarceration were present, a correct diagnosis was formed in seven only; in the remainder, the nature of the hernial contents was not ascertained until the sac had been opened. The prognosis in ovarian hernia is favorable as regards life, but unfavorable as regards the function of the organ. Attempts should be made to reduce the displaced ovary, if possible, by the same proceedings as are followed in other herniæ. If the hernia be irreducible, a concave truss should be worn. If the tumour become very painful, extirpation is indicated. When inflammation occurs, the patient must rest; cold applications are to be used in the traumatic, and warm in the menstrual form. If abscess occur, it should be opened; or it may be evacuated by means of an aspirator. The opening of the peritoneal sac for the purpose of replacing an irreducible healthy ovary is condemned by Englisch. Of the cases in which extirpation of a healthy irreducible ovary was performed, one half died of subperitoneal inflammation and its results.

Sciatic hernia.—Dr. Marzolo of Padua has described the case of a female who was first seen by him in 1847. She was then thirty years old, and for ten years had noticed a small tumour in the right gluteal fold, which disappeared on lying down, and again protruded and gradually increased while she was erect. The patient had been pregnant five times; on four occasions she miscarried, and once bore a healthy child at the full term. The hernia now formed a large swelling, the base of which covered part of the nates, and reached as far as the trochanter and the pubic arch. It was 60 centimètres in length, and 118 in its greatest and 80 in its smallest circumference. It apparently contained a large part of the intestines, as the belly was retracted, the abdominal wall lying in contact with the vertebral column. On lying down or sitting, most of the hernial contents returned into the abdomen, the patient was accustomed to sit upon the hernia. Defæcation and coitus were interfered with. The patient came under treatment again in 1871. There was no great change in her condition; but the hernia had now become quite irreducible, and at the lower part the percussion sound was dull and fluctuation was distinctly felt. Marzolo now made a puncture and drew off nine quarts of fluid; severe diarrhœa soon set in, and the patient died. A *post-mortem* examination could not be made. ('Wien. Med. Wochenschr.,' July 6, 1871.)

Intestinal obstruction; injection; kneading; cure.—Dr. Hilton Fagge records the case of a man, æt. 40, who was attacked with great pain in the abdomen quickly followed by severe vomiting. This was Oct. 22, 1871, in the evening. He came under the care of Mr. Brookhouse Oct. 23. His face had an anxious expression; he was crying out with pain, a little to the right of the median line of the epigastric region, increased by pressure. On the fourth day Dr. Fagge saw him. The vomited matters were not stercoraceous. On Oct. 28, the seventh day, in the evening (that is after six days' strangulation, according to the dates given, but five days according to the heading), a copious injection was given and the abdomen was kneaded. The injection was repeated next day. The man recovered. Dr. Hilton Fagge remarks:

—"In this, as in so many other cases of intestinal obstruction, it was not possible to determine accurately the cause of the disease. The history of the attack pointed to a sudden closure of the calibre of the bowel, and probably to the small intestine as its seat; while the fact that mucus and blood were passed on the third day was in favour of the existence of an intussusception, and of its having become strangulated as soon as formed. The remarkable feature in the case, however, is the success of the energetic treatment which Mr. Brookhouse adopted. It can hardly be doubted that the life of the patient was saved by the kneading of the belly carried out by his medical attendant, and so satisfactory an issue in this case may well encourage other surgeons to adopt a similar procedure. Yet it cannot be denied that such forcible manipulation of the abdomen would, in many instances, involve great risks of tearing through parts softened by inflammation, or even sloughing, and might thus counteract the curative processes of nature. It can scarcely be said that there was anything in the symptoms in Mr. Brookhouse's case that indicated the special applicability of kneading; nor does the success of the treatment enable a more accurate diagnosis as to the nature of the intestinal lesion to be given than had been given before it was tried. The case still remains very obscure in this respect." ('Lancet,' July 27, 1872, 111.) A case is recorded which came under the care of Mr. Waren Tay, at the London Hospital. A man, æt. 49, who was apparently in good health, was seized while in the street, at five o'clock in the morning, with acute pain in the epigastrium. He soon vomited and continued to do so. Thirty-six hours later the vomiting became stercoraceous, and seven or eight hours later he was admitted. He continued to vomit stercoraceous matter repeatedly; he was in great pain (referred to the right side and above the umbilicus), and apparently in an urgent condition of collapse. No hernia could be ascertained. There was no local swelling or tenderness to aid in the formation of an accurate diagnosis. There was no history of any previous attack of any sort. Some sudden displacement or knotting of intestine seemed indicated. The man's symptoms were so urgent that the question of gastrotomy had been entertained. It was not thought he would live through the night. Three washhand basinfuls of injection were thrown up, and then chloroform was given, the abdomen kneaded, and the man was also inverted and shaken. When he recovered from the chloroform he said he was relieved. Owing to the urgency of the previous symptoms, a consultation was held a couple of hours later; it was then manifest, however, that he was much better; no further vomiting occurred (save slightly once), and the man quickly and thoroughly recovered. The nature of the case did not admit of any diagnosis being made; but the case is important from the urgency of the symptoms, which were so rapidly relieved. The enema visibly distended the abdomen, and the obstruction could not have been in the large intestine. ('Med. Times and Gaz.,' Dec. 14, 1872.)

Intestinal obstruction.—Mr. Bryant writes on this subject ('Med. Times and Gaz.,' March 16, 30, April 29). He details a number of very interesting cases. Mr. Bryant relates cases in which he has performed ***lumbar colotomy***, and remarks on the kind of cases adapted

for this procedure ('Med. Times and Gaz.,' May 18 and June 15, 1872.) Mr. Steele records cases ('Brit. Med. Journ.,' Sep. 7, 1872). Dr. Taylor narrates a case in which a portion of the ileum was found in a knot, at the post-mortem, which might have been unravelled had an operation been performed. A figure of the knot is given. ('Brit. Med. Journ.,' July 29, 1871; Edin. Med. Journ.,' Aug. 1871, 126.)

Biliary concretion in the ileum causing intestinal obstruction.—Mr. Le Gros Clark records a case and figures the concretion ('Med.-Chir. Trans.,' lv, 1).

Cases of intestinal obstruction, at the seat of a congenital constriction of the gut, and at the point of departure of a diverticulum., probably the remains of the omphalo-mesenteric duct, are recorded by Dr. Southey. One patient was a lad, æt. 16, the other was a girl, æt. 13½. ('Clin. Soc. Trans.,' v, 159 and 162.)

Mr. Bell and Dr. Croom narrate the case of a man, about 50 years of age, who was under care for *obstruction of the bowels with peculiar features.* He was in good health and had never had any previous attack. He lived from Feb. 4th till Feb. 10th, suffering from obstinate obstruction without any *nausea* or *vomiting* during the whole time. The abdomen was swollen, on the whole, resonant on percussion. There was no marked tenderness anywhere, but the pain was localised, chiefly, in the right iliac fossa, rather above the position of the ileo-cæcal valve, and, at this spot, careful, deep pressure gave the sensation of several coils of intestine matted together and distended chiefly with air. A tumour, which could not be moved out of its place, but was as if moored to the back of the abdomen, could be felt. It was lobulated and resonant. The diagnosis of a twist of the small intestine, probably quite close to the cæcum, was made. An operation was proposed, but the suggestion was not agreed to. After death evidence of general peritonitis was found. In the right iliac fossa there were several coils of small intestine matted together. A portion of one coil had burst. For three inches from the iliac valve, the intestine was absolutely contracted and empty up to a distinct twist, rather more than half a turn, which evidently was the seat of the obstruction. The points of diagnosis were arrived at by exclusion. The pain was not sharp enough for gall-stone, nor in the right place. As the enemata had passed well into the colon the seat of obstruction was probably on the right side; secondly, the absence of vomiting made the ileum more probable than the jejunum; and lastly, the tumour in the right iliac fossa seemed probably ileum low down. Had it been higher up it would have been more likely to have changed its position at times. There was also a peculiar coiling, lobular movement to be felt in the affected portions of the intestine such as is described by Brinton. The question of the pathology of the affection is entered into, whether the peritonitis precedes the twist, or whether, more probably, the twist forming accidentally first, the peritonitis occurs as a secondary condition. The question of treatment is also discussed. After medical means have been fully tried gastrotomy affords the only chance. In this case, the coil could have been untwisted. Colotomy would not have been of any use. Great relief had been afforded to the patient by tapping the intestine and letting air out. ('Edin. Med. Journ.,' May, 1872, 971.)

Intestinal obstruction; formation of artificial anus in small intestine.—Mr. McCarthy records a case of obstruction of the bowels caused by cancerous disease, in which he made an incision in the abdominal wall, opened the first piece of intestine which presented and stitched it to the edges of the wound. The patient lived for forty-eight days having been much relieved by the operation. Death was caused immediately by failure of the heart. The carcinoma had originated in the cardiac end of the stomach and had involved the splenic flexure of the colon. There was not the slightest evidence of peritonitis. Mr. McCarthy remarks on the *absence of peritonitis*. It is stated by authorities to be almost inevitable after such an operation. Another point of interest was the fact of there being very fluid, but otherwise normal, fæcal matter in the portion of the bowel between the artificial anus and the obstruction. It is also noteworthy that the patient recovered. ('Med.-Chir. Trans.,' lv, 267.)

Gastrotomy for intestinal obstruction.—Dr. Buchanan operated on a young woman who had symptoms of acute intestinal obstruction, *successfully*. The patient was 29 years of age, in good health. The symptoms began with severe pain in the abdomen followed by vomiting. On the third day, stercoraceous vomiting occurred. On the fourth day, Dr. Buchanan saw the patient. The voice was husky; her countenance was anxious and pale; the extremities were cold; her pulse was weak; and she was restless and uneasy in whatever position she lay. The abdomen was distended with flatus. The most careful examination failed to detect any point which could be referred to as the seat of the obstruction. An incision was made from the umbilicus downwards for about four inches. As soon as the peritoneum was opened a quantity of turbid serum flowed out and was collected, altogether about a pint. It had very much the appearance of whey, with flocculi, like pieces of curd, floating in it. It was very acrid, smarting the skin when it came in contact with the hands. The intestines were glued together and one coil was sharply bent on itself. The right hand was introduced into the abdominal cavity and a thorough exploration made. The intestine was removed from the pelvis with slight jerks to liberate any portion possibly strangulated. An assistant kept the bowels from protruding from the abdominal cavity. The pelvis was sponged out. The wound was secured with deep and superficial sutures. The patient did well afterwards. She had an attack of swelling of the left lower extremity resembling phlegmasia dolens. Dr. Buchanan alludes to cases of spontaneous recovery in intestinal obstruction, but remarks that there are few, if any, in which stercoraceous vomiting has gone on uninterruptedly for more than forty-eight hours which have not terminated fatally. The cause of the stercoraceous vomiting he supposes to have been the twist of the intestine held down by adhesions or else the acrid peritoneal fluid. Mr. Hancock, in 1848, performed a somewhat similar operation and let out a quanity of greenish, flocculent serum with decided relief of the symptoms and ultimate cure of the patient. In a paper which Mr. Hancock read before the Medical Society, he advocated opening the peritoneum in other cases of peritonitis in "cases where the effused fluid destroys rather by its character than its quan-

tity. . . . where the sinking and typhoid symptoms depend on the presence of the offensive fluid in the peritoneum." Dr. Buchanan, after the experience of his own case, was inclined to make the same suggestion before he became aware that such had already been done. ('Lancet,' June 10, 1871, 777.)

Mr. Hulke publishes a clinical lecture on the following case:—A man, æt. 32, in good health, after a hearty meal of fish, was seized with pain in the belly—he thought it colic—shortly followed by vomiting. The pain left him, but the sickness continued. On the tenth day Mr. Hulke found his belly uniformly swollen and hard, so hard that no reasonable pressure dimpled it. He often vomited a pea-soup-like fluid having a fæcal smell, which gushed copiously from his mouth with but little heaving. The only pain and tenderness in the belly, and this was very slight, he referred to a spot rather above and to the right of the navel. His pulse was small, quick and weak. By a process of exclusion well described by Mr. Hulke, "it became likely that the obstacle was either a twist, or the entanglement of a piece of small intestine in a hole in the mesentery or omentum, or an adventitious, constricting band. A negative reply to repeated questions whether he had any previous abdominal ailment weighed rather against the supposition of a band, and favoured volvulus or entanglement with strangulation, because an adventitious band necessitated a previous peritonitis, and of this there was no history; but then a very limited and sub-acute peritonitis might have passed unnoticed; it might have been, so to say, latent, just as the post-mortem theatre teaches us daily with regard to pleurisy and periorchitis, revealing adhesions of the costal and pulmonary pleuræ, and of the testis and parietal tunica vaginalis in the bodies of persons in whom during life these maladies had not been suspected." *The abdomen was opened* by a cut in the median line midway between the navel and pubes, through which the hand was passed and an empty piece of small intestine sought for, by tracing which Mr. Hulke hoped to be led to the obstruction. The distension of the small intestines caused great difficulty. Many feet of intestine had to be drawn out and returned again. The obstacle remained undiscovered. *The bowel was tapped with a very fine trocar.* Much stinking gas hissed out, but only a few inches of bowel collapsed, and on pulling out the canula thin pea-soup-like fæces oozed through the prick. An attempt to tie up the opening resulted in its becoming larger. The *punctured gut was slit up* and stitched securely to the skin: a large panful of fluid fæces immediately ran out. The relief was prompt and remarkable; the vomiting ceased and the belly became soft; he had no pain, and his temperature was not raised; this, however, was not conclusive as to the absence of peritonitis. Fifty-three hours after the operation the patient died exhausted. At the post-mortem the intestine and peritoneum were found inflamed; the sigmoid flexure of the colon had a very long and lax meso-colon, which allowed it to stretch in an angular loop across the pelvis from left to right. At the apex of the loop, a long epiplooic appendage, issuing from the free border of the gut, gave attachment to one end of a thin, glistening, tendinous band, the other end of which crossed and tightly tied down the ileum about three inches

distant from the cæcum, and lost itself on the peritoneal lining of the pelvis near the right sciatic notch. The band might have been easily reached and safely cut had its seat been discovered during the exploration. The lessons drawn from the case are, that "notwithstanding its fatal issue, the ascertained practicability of cutting the constricting band is an encouragement to operate again under similar circumstances. Next, the acute and general enteritis and the ulceration at the constriction, already present when the operation was done, show how much danger grows with delay. Again, we learn that the plan of puncturing inflated intestines for the purpose of letting off gas is safe only when the gut does not also contain fluid fæces; and when, unspoiled by inflammation, its muscular coats can shrink and close the puncture, assisted by a slight sliding of the mucosa; but where the gut is damaged by inflammation, and contains also fluid fæces as well as gas, the hindrance to the search caused by tight packing of the inflated intestine, will be more safely dealt with by a freer section of the walls than by puncture. We are taught, also, that fixed tenderness and pain are very uncertain guides to the seat of an obstruction, for here that situation pointed to the upper end of the small intestine, while the obstruction was close to the cæcum. Lastly, in traumatic peritonitis we may expect a low temperature, and are not to be thrown off our guard by the absence of a high one."

Mr. Thomas Annandale narrates a case in which he performed gastrotomy on the fourth day of obstruction of the bowels, and divided a band of lymph. The patient died about eighteen hours after the operation. He was a man aged 55, who was taken suddenly with severe pain in the abdomen. Fæcal vomiting rapidly set in, showing that the obstruction was complete. Mr. Annandale sums up (1) when the symptoms of sudden and complete intestinal obstruction are present, and the ordinary means of treatment have failed to give relief, the operation of gastrotomy is justifiable and advisable. (2) That the operation should not, if possible, be delayed beyond forty-eight or thirty-six hours after the first symptoms have appeared. (3) That the abdomen should be opened in the middle line; and, that during the operation and after it every precaution should be taken to lessen the risks of peritonitis. (4) That when the abdominal cavity is opened the best guide to the seat of obstruction is the contracted or dilated condition of a portion of the intestine. (5) That if the intestine be gangrenous, or the obstruction not removable, its canal should be opened as near the obstruction as possible, and an artificial anus established. ('Edin. Med. Journ.,' Feb. 1871.)

In the 'Brit. Med, Jour.,' March 23, 1872, is an abstract of a case recorded in 'Lo Sperimentale' for March, 1872. The patient was a man aged 25, who had double inguinal hernia. Symptoms of internal strangulation came on while both herniæ were reducible. On examining one, by operation, and passing the finger into the abdominal cavity a knuckle of intestine was found tightly strangulated by a hard fibrous band. This was divided. *The patient left the hospital, cured, in a month.*

Opening the stomach for cancer.—Three cases in which the stomach

was opened for disease are related by Mr. Smith and Mr. MacCormac. In the case under the care of Mr. Smith the patient lived seven days. In one of Mr. MacCormac's cases the patient lived six days. It seems doubtful whether in any case yet recorded the operation has prolonged life. It seems to relieve suffering. In the cases which have survived for three days, peritonitis has always been present. ('Clin. Soc. Trans.,' Vol. v., 236 and 242). Dr. Lowe relates the case of a woman suffering from scirrhous cancer of the œsophagus, in which he opened the stomach. Considerable relief followed. She died on the third day rather suddenly (about sixty hours after the operation). ('Lancet,' July 22, 1871.) A case in which Dr. Troup opened the stomach of a man suffering from cancer is noted in 'Edin. Med. Journ.,' July 1872, 36. The patient lived for three days afterwards and was greatly relieved.

Wound of abdomen with injury of the intestine; recovery.—The wound of the abdomen was a lacerated one; omentum protruded and the peritoneal coat of the jejunum was damaged. Mr. Horton ('Brit. Med. Journ.,' Sept. 28, 1872).

Recto-vesical fistula treated by colotomy.—Mr. Bryant records two cases. In 1869 he recorded another case (see 'Retrospect'). His present cases were very successful. The ulcerated action which caused the fistula was in all probability of a simple nature, and commenced in the rectum. In both the relief afforded was complete. The ulcerative action ceased if it did not heal. The escape of urine into the rectum showed that the fistula remained open, but fæces did not escape into the bladder. The cases corroborate remarks made by Mr. Holmes in connection with a similar case and noted in a previous 'Retrospect.' ('Clin. Soc. Trans.,' v. 131.)

Colotomy.—Cases of colotomy for stricture of the rectum under the care of Mr. Hulke will be found noted in 'Lancet,' July 20 and following nos., 1872.

Imperforate Anus.—Dr. A. Stern relates in the 'Wiener Med. Wochenschr.,' No. 21, 1872, a case of successful operation for imperforate anus in a newly born child. No bulging could be perceived in the perinæum when the infant cried. An incision was made, and the blind end of the rectum was reached at the depth of an inch and a half. It was laid open, giving exit to a quantity of meconium: and the edges were brought down and fastened by sutures to the external skin. The hæmorrhage was very slight. The wound was dressed with lead lotion and carbolic acid, and healed by granulation. The child was in good health six weeks after the operation.

Stricture of the rectum.—Cases of stricture of the rectum treated in various ways, one of them by electrolysis, are narrated by Dr. Whitehead ('Am. Jour. Med. Sci.,' July, 1872, 114). He also records a case of fibrous stricture of the rectum in a married woman, aged 38, which he treated with deep incisions and gradual dilatation afterwards. The dilatation was effected by means of an india-rubber, conical bag into which water was injected through a pipe provided with a stop-cock. The water is used warm. To prevent the sphincter being too much pressed on, the pipe which is embraced by the sphincter should be

at least an inch and an quarter in length. The pipe should also be provided with an india-rubber flange to prevent its passing too far in. The pipe terminates inside the bag in a sort of rose which is surmounted by a delicate, flexible, hard-rubber probe four inches long, and to which the capote, or bag, is attached superiorly. The probe is screwed into the pipe at its bulbous end and may be replaced by others of different lengths and flexibility. He alludes to opinions of authors on the rectum in relation to syphilitic stricture and considers that sufficient attention has not been called to this form of stricture. The seat of the stricture is at the junction of the dilated part with the sphincter, about one inch and a half from the anus. The patients, with very rare exceptions, are women. Fissures and fistulæ in ano and in perineo, or fistulous tracts opening into the labia, sometimes complicate stricture of the rectum, and condylomata about the anus are frequent. The stricture may be partly fibrous, tight and unyielding, the fibrous constriction being from half an inch to two thirds of an inch in extent, or the stricture, while forming, may produce the sensation to the finger of irregular elevations or of crescentic folds which readily break down from pressure of the finger. The intestine sometimes four or five inches above the stricture is ulcerated and the extensively ulcerated surface is terminated superiorly by a festooned border. There is considerable purulent secretion and the contraction of the sphincter favours its accumulation in the ampulla. It lasts for months or years, before the formation of a stricture. The mucous membrane may be so softened that a bougie easily penetrates it and may enter the peritoneal cavity. If the ulceration is low down pain on defæcation is complained of, if higher up there may be no pain. The patients are generally between 17 and 40 years of age. Owing to the anatomical relations of the ano-genital region of the female, the chancrous matter of the syphilitic sores, nearly always present on the vulva, infects this region, occasioning rhagades or fissures of the anus. The ulceration extends to the ampulla of the rectum, where it remains long after the healing of the external sores and on cicatrising causes a tight, fibrous stricture. The stricture is lower down than in cancerous disease. An antisyphilitic treatment is worse than useless. It does harm by debilitating. When the stricture is fibrous, it should be very freely divided with the knife or scissors and kept properly dilated. Chloride of zinc or carbolic acid sufficiently diluted should be applied to the ulcerated part above. ('Am. Journ. Med. Sciences,' Jan. 1871, 115.)

Removal of a portion of bone from the rectal fossa. Dr. Thompson relates the case of a man, aged 70, who, twenty years previously, had begun to suffer from pains in the back and pelvis. After five years he consulted a surgeon, who could not find anything the matter. When he came under Dr. Thompson's care he complained of "piles." On examination an almost raw surface was found extending two inches round the anus and a zone of erysipelatous blush four inches in breadth. On the left side, about an inch from the anus, there was a small opening, through which appeared a small black point. This was seized and drawn out by slightly enlarging the orifice and proved to

be a piece of bone three quarters of an inch square. No piles were found. A probe passed through the opening entered the rectum a short distance above the sphincter, and a considerable cavity remained where the bone had rested. The following day two other small pieces of bone were removed. The fistula was subsequently slit up. The patient declared that he felt more comfortable than he had done for twenty years. He regained his former activity. The pieces of bone were examined and were possibly portions of the scapula of a rabbit. The patient thought it had been "in him all those years," if so, it must have lodged in some part of the intestine, ulcerated its way out and gradually reached the pelvic opening. There was no history of any injury to the spine or sacrum. ('Lancet,' Aug. 26, 1871, 289.)

Ovariotomy.—Mr. Alcock operated *on a child three years old.* The tumour was universally adherent. The patient died at the end of forty-eight hours. ('Lancet,' Dec. 16, 1871, 850.)

Dr. W. Barker has operated on a *child aged six years and eight months.* The case was one of dermoid cyst of the right ovary. The patient recovered. ('Philadel. Med. Times,' Nov. 1, 1871, and 'Am. Journ. Med. Sci.,' Jan. 1872, 285.)

A case of ovarian disease on which Dr. Newman operated, using *antiseptic ligatures and dressing,* is narrated in the 'Med. Times and Gaz.,' Feb. 17, 1872, 184. Hæmorrhage occurred into the peritoneal cavity and the wound was opened (under carbolic spray) on the tenth day. About three ounces of "dark coloured and slightly offensive blood" was let out. The patient recovered. Dr. Newman regretted he had not used a clamp instead of the catgut ligature.

Mr. Spencer Wells publishes further tables of hospital cases in the 'Med. Times and Gazette,' Feb. 18 and March 25, 1871, 187 and 337. A fourth series of 100 cases of ovariotomy are recorded by Mr. Wells in the 'Med.-Chir. Trans.,' liv, 263. Of the first 100 cases, 34 died; of the second 100, 28; of the third 100, 23; of the fourth, 22. Remarks are added on the diagnosis of uterine from ovarian tumours. Mr. Spencer Wells has contributed a fifth series of 100 cases of ovariotomy, with remarks on the results of 500 cases to the 'Med. Chir. Soc.,' Nov. 26, 1872 (abstracts in 'Med. Journ.'). In the 'Brit. Med. Journ.,' May 18, 1872, is a short editorial, grouping together various *statistics of ovariotomy.*

A case of *unilocular ovarian tumour,* with pelvic and intestinal adhesions, operated on successfully by Dr. W. L. Atlee, is given. In a second case of multilocular tumour, with extensive adhesions, death occurred. ('Am. Journ. Med. Sci.,' April, 1872, 389.)

Dr. W. L. Atlee records *five cases of ovariotomy.* Three patients recovered and two died. In one of the successful cases there were extensive adhesions, in the two others there were none. In one case there was a pervious urachus. In each of the fatal cases there were extensive adhesions. All were multilocular. ('Am. Journ. Med. Sci.,' July, 1872, 127.) Dr. W. L. Atlee records further cases (Oct. 1871, 409). In one in which recovery occurred a ligature had been tied round a detached portion of peritoneum. When this came away an artificial anus was found to exist. This gradually closed. During its

existence the bowels acted regularly. In two other cases death followed.

Ten cases of *ovarian disease* operated on at the Hospital for Women are detailed in the 'Lancet,' 1871 (March 2, 9, and 16). In all the cases the pedicle was tied and dropped in. A double ligature was passed through the centre of the pedicle and tied on each side, and then one of the ligatures encircled the whole pedicle and was tied again. The abdominal cavity was always thoroughly cleansed out with sponges on holders, wrung out in warm water before the sutures were inserted. When the wound was brought together a broad strip of strapping was placed across the abdomen tightly from hip to hip, and a large linseed-meal poultice with a drachm of laudanum was applied and changed every four or six hours and continued for six or seven days. Seven of the patients recovered, three died.

Dr. W. F. Atlee records a successful case of ovariotomy, and also a case in which he *successfully removed an enlarged uterus which was considered to be an ovarian tumour*. Dr. W. L. Atlee's clamp was used in each instance. ('Am. Journ. Med. Sciences,' July, 1871, 156.) Dr. Packard relates a somewhat similar case. The tumour was not removed. The patient died (Oct. 1871, 433). (See previous 'Bien. Retrosp.' also.)

Mr. Keith records a *third series of* 50 *cases*. Of the last 100 cases there have been 84 recoveries. Eight of the last 50 patients died: 2 from obstructed intestine, 1 from acute septicæmia, and 5 from peritonitis. In 2 of these the adhesions were considerable, in 1 moderate, while, in 5, the tumours were non-adherent. In 6 of the fatal cases, the clamp was used; in 1, catgut ligatures to one ovary and clamp to the other; in another the long ligature of Dr. Clay. In nearly one third of the cautery cases, bleeding took place from large vessels and ligatures were necessary. ('Lancet,' Nov. 16, 1872.)

Treatment of suppurating ovarian cysts and pelvic adhesions in ovariotomy.—Mr. Holmes remarks on a case of ovarian disease in which after a preliminary tapping, apparently revealing a single cyst without complications, suppuration of the cyst ensued. The patient complained of constant pain in the right iliac fossa, and became very emaciated. She was sent to a convalescent home at Wimbledon. When she had improved as much as she was likely to do, Mr. Holmes operated. A large quantity of pus was let out. Many adhesions were found, but all were separated till the brim of the pelvis was reached; here there were very firm adhesions. The remains of the cyst were pulled out as far as possible, the intestines returned into the belly and the lower portion of the cyst clamped. The wound was united; next day there was a little oozing of blood from the walls of the cyst, which were nearly half an inch thick. A strong ligature was passed through the mass above the clamp, and the exposed edges of the cyst were seared with the actual cautery. The clamp was removed on the third day. The sloughing stump gradually receded and tympanites became developed. She recovered gradually, but completely.

Mr. Holmes remarks, "The internal inflammation which leads to suppuration will, I should suppose, usually, if not always, be accom-

panied by external peritoneal inflammation. The first question we have to decide is whether it is possible to distinguish the symptoms of suppuration from those of peritonitis. When occurring in the acute form after the operation of tapping, I believe the diagnosis may be made with moderate certainty, from the rapid refilling of the cyst, with rigors, sweats, high temperature and general fever. But few such cases would, I imagine, afford any opportunity for surgical treatment. Mr. Spencer Wells has recorded one successful case of ovariotomy during acute suppuration in a lecture in the 'Med. Times and Gazette.' It is more important in a surgical point of view to inquire into the symptoms and treatment of that chronic form of suppuration which is more common and more tractable that the former." Quotations from authors on this subject are given. Mr. Holmes says "I much regret that the thermometer was not used in the case I have related, but the heat and dryness of the skin were certainly not present, nor was the tongue of the character described by Mr. Wells. In fact, the patient was so free from any indication of general fever that it never occurred to me to take thermometical observations, nor is it likely that a very elevated temperature could have coexisted with symptoms otherwise so ill-defined. The sickness which came on shortly after the abdominal pain and tenderness was of no value as a diagnostic sign, since equally troublesome sickness occurred before the tumour had been meddled with in any way, and when the fluid was certainly not purulent. No rigors were observed at the time, and on questioning the patient afterwards she said she had never had any. There remains the rapid and extreme emaciation combined with a peculiarly feeble pulse. It is difficult to convey in words an idea of the strange oppressed pulse in this patient; it really seems to me that this emaciation and this peculiar pulse were the only general symptoms which ought to have attracted our observation, and on which a diagnosis could in future be founded. But I would also call attention to the fact of the patient having complained of acute tenderness when the cyst was pressed upon in various parts." "I think I might say that in another case in which this general tenderness to pressure coincided with symptoms of low peritonitis, with rapid emaciation otherwise unaccounted for, and with a very feeble and somewhat rapid pulse, I should be disposed to conjecture the occurrence of chronic suppuration within the cyst, and that this conjecture would be confirmed if the rise of temperature, mentioned by Mr. Wells, were observed." What is the surgical indication? Mr. Bryant and Mr. Wells are quoted. Mr. Holmes thinks the best plan is at least to attempt the operation of removal of the suppurating cyst. The question of opening the cyst freely and attaching it to the abdominal wall in case the adhesions are found invincible, must be kept before the surgeon's mind. "Another interesting question in ovariotomy, illustrated by this case, is how to manage cysts which are so adherent in the pelvis that they cannot be pulled out without too much danger. In this instance any persistent attempt to have dissected or torn away the mass from the pelvic outlet would probably have ended in laceration of the ureters or great veins, and might, after all, have been futile. The alternatives are to pull the

cyst as far as possible out of the abdomen and apply a clamp to its neck; or to apply a clamp temporarily, cut away the cyst, sear the cut edges with the cautery and return the mass into the abdomen; or instead of the cautery to use ligatures for the purpose of restraining hæmorrhage from the cut edges of the cyst; or, finally to stitch the edges of the cyst to the wound in the abdomen and leave the cavity of the cyst exposed. I have no doubt of the superiority of the first method when it is practicable, that is, when the neck of the cyst is thin enough to be embraced in the clamp. The internal surface of the cyst is thus brought into contact and may adhere and obliterate the cavity, as seems to have occurred in our patient. If this does not take place, at any rate the resulting inflammation during the healing of the wound will probably exclude the mass from the peritoneal cavity, just as effectually as if the edges were stitched to the wound; whilst the plan is free from the dangers incurred by leaving the remains of a suppurating cyst free in the pelvis, and those resulting from the irritation of ligatures in the pelvic cavity." Mr. Wells relates a case in which the ligatures set up mischief. "The case before us was an example of complete, and, I must allow, unexpected success. I expected that when the clamp and pins had been removed a suppurating sinus would be left proceeding from the interior of the cyst, which would only gradually dry up, if at all. Such a result would not, however, be inconsistent with good health and activity." At the end of a year the patient remained quite well. The cicatrix was quite sound and free from irritation, with no perceptible swelling beneath it. ('Med. Chir. Trans.,' lv, 195.)

Peritoneal inflammatory cyst resembling an ovarian tumour.—Dr. W. L. Atlee records the case of a married woman, who at her last confinement, five months previously, had been discovered to suffer from a tumour on the right side of the uterus. Some days after childbirth she was seized with rigors followed by fever and supposed peritonitis, and a rapid development of the tumour, with great constitutional disturbance and emaciation. When Dr. Atlee saw the patient she was larger than a woman at full term. Notwithstanding the case was very unfavorable for operation, in consequence of the acuteness of the original attack, the rapidity of the development, the pelvic complication, the displacement of the uterus, and the general condition of the patient, it was determined to make an exploratory operation, as it was believed at the time that the tumour was ovarian. An incision was made, and a cyst found, which was not ovarian, but came from the pelvis. The cyst was laid open, and fifteen pints of greenish pus and numerous large, stringy clots of fibrinous matter let out. The patient died on the third day. "After the operation I supposed that the original tumour was a pedunculated, uterine fibroid tumour, that inflammation had supervened, and that an abscess had formed within it, which had caused it to partake of the characteristic signs of a unilocular ovarian cyst. Subsequent experience, however, satisfied me that this last opinion was erroneous, and that the tumour originated in the pelvis through inflammation localised in the peritoneum, agglutinating the serous surfaces, and forming pockets wherein to receive the resulting fluids of this inflamma-

tion, forming what I denominate, in my book on the diagnosis of ovarian tumours, a *peritoneal inflammatory cyst.*" ('Am. Journ. Med. Sci.,' July, 1872, 133.)

Large ovarian cyst; tapping; inflammation; great prostration; ovariotomy; recovery.—Mr. John Clay records the case of a patient who was in extreme prostration resulting from inflammation of an ovarian cyst after tapping, when he performed ovariotomy with success. ('Lancet,' Sept. 7, 1872.)

Cases of ovariotomy, under the care of Dr. W. L. Atlee, are given. ('Am. Journ. Med. Sci.,' Jan. 1872, 113.) In one case *the cyst was full of pus*, and was *everywhere adherent*. Neither clamp nor ligature was used, the vessels of the pedicle having been destroyed by inflammation. A second case was one of cyst of the broad ligament. A third was multilocular with extensive omental adhesions. All the patients recovered. A case is also recorded which was under the care of Dr. John L. Atlee. The cyst was multilocular, there were slight adhesions, and the patient recovered. (p. 118.)

Wound of intestine during ovariotomy, with recovery.—Mr. C. Heath records a case in which he operated for ovarian disease, and, in enlarging the abdominal wound with scissors, cut a piece of intestine which became entangled between the blades. He stitched the intestine to the abdominal wound, and so formed an artificial anus. After some time he applied the actual cautery to induce the opening to contract. It never quite closed; but the patient became fat, and a pad and belt sufficed to prevent all extrusion of fæcal matter. Mr. Heath remarks that he believes no similar case is on record, and it will serve as a warning to surgeons to be on their guard against adherent intestine. If such an accident should occur he thinks the plan he adopted the best which could be carried out. ('Clin. Soc. Trans.,' v, 35.)

New clamps, &c.—Dr. W. L. Atlee describes and figures a new clamp, constructed so as to ensure a parallel grip, and admitting adaptation to a narrow or wide pedicle. ('Amer. Journ. Med. Sciences,' April, 1871, 370.) At p. 398 of the same journal he narrates seven cases of ovariotomy. Two of the patients recovered, five died. Further cases are given July, 1871, 128. They are three in number. The patients recovered, but in one, the tumour was not removed.

Dr. Dawson has invented a new clamp. It is oval. One limb lifts away from the other, the pedicle is included, the limb fixed, and then an inner **V**-shaped piece is screwed down on the pedicle. This may be cut through with the clamp if desired. ('Am. Journ. of Obst.,' Aug. 1871, quoted 'Am. Journ. Med. Sciences,' Oct. 1871, 583.)

Division of pedicle in ovariotomy.—Dr. Macleod, of Glasgow, suggests twisting off the pedicle in ovariotomy, and returning the stump wholly within the abdomen. He uses strong forceps with stirrup-shaped blades, the straight ends answering to the straight cross-bar of the stirrup fit into one another when closed. The pedicle is grasped with these, then the tumour is cut off at a like distance from the forceps, and the cut extremity seized by another pair of forceps, and slowly twisted off. In one case in which he tried this plan it succeeded perfectly. There was no hæmorrhage. He returned the stump within

the abdomen and closed the wound. The patient made a rapid recovery. Figures of the forceps are given. ('Lancet,' Jan. 28, 1871, 108.)

Dr. Beebe records cases in which he severed the pedicle gradually, and twisted each vessel as it bled, afterwards returning the stump into the abdomen, and closing the wound carefully. Five cases in succession treated in this way recovered. Also another in which he applied a single catgut ligature to the pedicle, and returned the stump, after cutting away the tumour, within the abdomen. ('Am. Journ. Med. Sciences,' April, 1871, 353.) See also Dr. Nott's *rectilinear écraseur*.

Cæsarean section.—Dr. Philip Foster records a case in which he performed Cæsarean section successfully, as far as the mother was concerned. ('Lancet,' June 1, 1872, 753.)

Dr. Harris has collected cases of Cæsarean section performed in the United States, and tabulated them. They are seventeen in number. Twelve of the women recovered, and fourteen of the children were saved. The operations "were performed during or at the close of the first day of labour, showing the value of timely surgical interference. In all of the cases but one the child was removed alive." ('Am. Journ. Med. Sci.,' July, 1872, 290, from 'Am. Journ. Obstet.')

Vaccino-syphilis.—A case was brought before the Clinical Society by Mr. Thomas Smith ('Trans.,' iv, 53). Subsequently two series of cases were brought before the Medico-Chirurgical Society by Mr. Hutchinson, and were reported on by a Committee. *First series, synopsis:*—Twelve persons, mostly young adults, vaccinated from a healthy-looking child. Satisfactory progress of the vaccination in all. Indurated chancres on the arms of ten of the vaccinated in the eighth week. Treatment by mercury in all. Rapid disappearance of the primary sores. Constitutional symptoms in four of the patients five months after the vaccination. The vaccinifer showing condylomata at the age of six months. *Second series, synopsis:*—Unquestionable symptoms of constitutional syphilis in nine children who had been vaccinated from the same patient. Suspicious symptoms in six others, and entire escape of a certain number. Vaccinifer a fine healthy-looking child, but with slight, local symptoms, indicative of inherited syphilis. ('Med.-Chir. Trans.,' liv, 317.)

Reinfection with constitutional syphilis.—H. Köbner, in the 'Berliner Klin. Wochenschr.,' No. 46, 1872, remarks that Ricord had asserted that syphilis can be contracted once only during life; a new infection cannot take place. This doctrine has been generally accepted, especially by the dualists; but Köbner calls it in question. He relates a number of cases of repeated infection which he has observed, among which is the following:—A man, æt. 40, had, in May, 1866, a sore on the penis, roseola, and sore throat, for which he was treated with mercury; in November, 1868, he had syphilitic sarcocele on the right side, and a node on the manubrium sterni. He was now treated by Köbner with iodide of potassium and mercurial ointment to the scrotum, and at the end of the year was able to resume his work. During the next two years he suffered occasionally from pains in the limbs and sternum, for the relief of which he took iodide of potassium, but did not seek medical

advice. The patient's wife was treated by Köbner, in the spring of 1867, for tubercular and ulcerative syphilides of the limbs. In October, 1871, the male patient had a very indurated shallow sore, with sharply defined edges, on the glans penis; the affection of the sternum also returned, and the right testis became enlarged, and in parts very much indurated. The induration on the penis disappeared in six weeks under the use of calomel ointment and iodide of potassium, the other symptoms remaining unchanged. The patient remained under observation eleven months, during which time he was treated for acute nephritis and symptoms of spinal irritation; no further symptoms were observed and no change was noticed in the residual symptoms of the first attack of syphilis. Köbner repudiates the idea that the induration observed on the penis was the result of a gummatous deposit, and calls to mind a number of instances in which several infections have been alleged to have taken place after the complete removal of all the symptoms of the first attack of syphilis. In 45 cases of repeated infection the only symptom, in 22, was indurated chancre; in 23, constitutional symptoms followed; these were severe in one case only. The constitutional affection was removed in the course of about eight weeks by appropriate treatment; and, except in one case, relapse did not occur. Köbner arrives at the following conclusions:—(1) Constitutional syphilis is perfectly curable, for it is only when the disease has been completely removed that the system becomes liable to infection, as in a healthy person. (2) Many inveterate, so-called tertiary affections, such as sarcocele and exostosis, are only local products or remains of an attack of syphilis that has run its course, and are not to be regarded as signs that the whole system is still infected. Parents with tertiary products of this kind may beget healthy children. (3) In more than two thirds of all the cases observed, the cure of the first attack of syphilis was effected by mercury, used sometimes in the form of inunction, but in most instances given internally.

Bone disease in hereditary syphilis.—G. Wegner has published some interesting observations on this subject in 'Virchow's Archiv.' He has examined forty children affected with intra-uterine syphilis, which were either still-born or died soon after birth. In almost all the cases Wegner found pathological changes in the bones in the forms of ossifying periostitis, and of a peculiar disease of the bone at the point of transition from the diaphysis to epiphysial cartilage. This last-named disease was found in three forms, which Wegner regards as three stages of the same affection. In the first, between the cartilage and the soft spongy bone is found a layer about two millimètres in thickness, shining, sometimes with a level surface, sometimes bulging. He believes it to be the result of increased proliferation of the cartilage-cells, with retardation or arrest of the conversion of cartilage into bone. In the second stage this layer has become doubled in thickness; there is considerable proliferation of the epiphysial cartilage-cells; together with progressive hardening and calcification of the intercellular substance and cells near the upper surface of the joint, and some evident retardation in the neighbourhood of the spongy bone-substance of the ossification of the cartilage. The third stage presents the following

appearances at the point of transition from the diaphysis to the epiphysial cartilage. There is first a layer of hyaline cartilage, then comes an indented layer of mortar-like substance about four centimètres in thickness, and finally there is a soft, pus-coloured layer, sometimes irregular, defined at the upper part, which gradually passes into the diaphysis. These three stages may be observed in different bones of the same individual. Wegner regards the disease as an irritative osteochondritis arising from syphilitic condition of the blood. The long bones, and the epiphyses of those which contribute most to growth, were specially affected. Along with these changes in the bones, fatty degeneration of the cells and vessels of the medulla is often found in syphilitic children, the marrow assuming a reddish-yellow or light yellow instead of a red colour. ('Wiener Med. Wochenschr.,' No. 8, 1871.)

Dr. Taylor's essay (reprinted from 'Am. Journ. Syph. and Derm.,' Jan. 1871) on dactylitis syphilitica, that is on late syphilitic affections of the fingers and toes, is a useful contribution to our knowledge of this rare form of disease, which has been generally overlooked by writers on syphilis. He has added to several published cases two that came under his own observation and has constructed a short, but valuable, essay. The disease consists of gummy infiltration of the subcutaneous connective tissue, the ligaments, periosteum, and bones of the phalanges. By this morbid process, irregular enlargements are produced in both fingers and toes, sometimes forming rounded swellings of the bone and periosteum near the first phalangeal articulation, which strongly resemble enchondromatous tumours. In other instances the enlargement spreads chiefly in the sheaths of the tendons and connective tissue, forming a dull, red, brawny thickening of the whole digit. These affections yield readily to specific remedies. The essay contains all the cases hitherto recorded of this peculiar affection and forms an important contribution to syphilitic pathology. ('Med.-Chir. Review,' July, 1871, 129.)

Subcutaneous injections of mercury in syphilis. — Dr. Sigmund, of Vienna, writes on this subject in the ('Wien. Med. Wochenschr.' for Sept. 9, 1871.) He first examines the disadvantages which, according to the opponents of the proceeding, attend it; viz. the formation of subcutaneous deposits; inflammation, abscess, and their results; the pain attending the process of injection; the difficulties of the process; the disturbance which it produces in the circulatory and respiratory systems; stomatitis and salivation; and, finally, the small amount of success attending subcutaneous injections as compared with other plans of treatment.

The formation of subcutaneous infiltration at the seat of injection no doubt occurs; but, under rest and care of the affected parts, complete absorption of the deposited material gradually takes place. The occurrence of inflammation and abscess is, no doubt, very troublesome and interferes with the cure; but it depends entirely on the manner in which the injection is made, on the strength of the solution used, and on the management of the patient after the operation. Sigmund has

used subcutaneous injections in more than 200 cases of syphilis in hospital and in private practice, and has twice only met with abscess as a result. The patients were of both sexes, of various ages and constitutions, and affected with syphilis in very various stages. Some patients had as many as thirty injections; usually one daily, sometimes one every second or third day. The parts chosen for injection were generally the trunk, sometimes the arms, care being taken to avoid parts that were liable to be lain upon, or to be subjected to movement or pressure. The process of injection was performed with great care, and the patients were required to protect the parts well and keep them at rest. The solution used in almost all the cases was that recommended by Lewin—four grains of bichloride of mercury in an ounce of distilled water. If patients are allowed to go heedlessly to their ordinary occupations immediately, or two or three hours after the injection, the occurrence of inflammation and abscess must be ascribed to this and not to the operation.

The pain attending injection in Sigmund's cases varied much, but was usually very slight and of short duration; in most cases, it was at once allayed by cold applications. In a few cases, the pain was severe and lasted for some time, no matter at what part or with how much gentleness the injection was made. Patients in whom this occurs are not fit subjects for subcutaneous injection; in them even the addition of hydrochlorate of morphia to the solution does not prevent the occurrence of the pain.

The details and difficulties of the operation are scarcely worth consideration. Good instruments are easily procured, and can be easily kept in good order. The operation is not a difficult one, and even if it occupy a good deal of the surgeon's time, that time is not lost if the result be successful.

Stomatitis and ptyalism occur frequently if the patients do not cleanse their mouths carefully and often. Dr. Sigmund has very seldom met with even slight affections of the gums in his patients, but he uses prophylactic measures. He has never met with disturbance of the circulation and respiration, or any other general disorders of any importance attributable to the mercury. The methodically continued use of all mercurial preparations is attended with a moderate increase of the heart's action and of the temperature: gastric disturbances often occur, but are to be attributed generally rather to the dietetic condition of the patient than to the treatment. The secretions of the skin and kidneys are but rarely disturbed in cases which must be regarded as exceptional. The chemico-vital processes in the blood and secretions which lead to the improvement or cure of the various forms of syphilis, go on without any remarkable functional disturbance; and if any such occur, it is probably due to other causes than the injection.

There has been a great difference of opinion as to the absolute and relative value of the subcutaneous method in the treatment of syphilis. It would be impossible to arrive at a conclusion from the observations of a few patients during a limited time, for the disease recurs at intervals in a variety of forms, continues long even in favorable cases, and at intervals manifests itself so feebly that it appears to have disappeared.

There is also the difficulty, even when a patient is kept under observation for a number of years, of knowing whether he confines himself to the prescriptions of his medical adviser, or uses sometimes those of other persons. The question as to the value of subcutaneous injection in syphilis is not yet ripe for decision; a prolonged series of clinical observations is required.

One of the alleged advantages of subcutaneous injection in syphilis is the possibility of allowing the patient to move about and follow his ordinary occupation. This advantage, however, is limited; for the wound made in the operation demands rest and care for a time at least, and it is often necessary simultaneously to apply local treatment to the genital organs, mouth and throat. In the treatment of syphilis, Sigmund insists most strongly on the importance of pure air and exercise; but when injection is used much care is required.

An essential advantage of subcutaneous injection, and one which cannot be overrated, is its precision. The surgeon knows when, how much, and where he introduces the medicine into the system, and can determine with the greatest accuracy the place, the time, and the repetition of the dose. Again, there is no immediate disturbance of the digestive organs. Perfection in the details of the operation, and attention to the hygienic and dietetic conditions of the patient are the most important points to be observed in a long and varied inquiry made with the view of arriving at a conclusion as to the value of the process. In Dr. Sigmund's opinion, no one as yet possesses the facts on which an absolute conclusion may be founded. Subcutaneous injection must be regarded as a valuable addition to our resources, inasmuch as—unfortunately not rarely—cases are met with which resist all the ordinary methods of treatment. As far as Dr. Sigmund has observed, its good effects are most readily obtained, and are apparently permanent in the simple papular, pustular, and squamous syphilides, in simple faucial and laryngeal catarrh, in diffuse inflammation of the muscles and tendons, of the periosteum and perichondrium and of the joints, and in neuralgic affections. It may also be used empirically where other methods have failed, or where, for special reasons, they cannot be carried out. To cases of the kind here referred to, Dr. Sigmund would limit the use of subcutaneous injection in private practice. Clinical observations, on the other hand, must embrace a wider range. As far as Dr. Sigmund has observed, he finds that he cannot support one of the assertions of the advocates of subcutaneous injection, viz. that it prevents secondary symptoms when employed in the initial stage, or that of induration. In all the cases which he has thus treated, the consecutive, cutaneous and mucous syphilides have appeared, just as if the disease had been treated locally or not at all.

Subcutaneous injection possesses an advantage in common with friction and fumigation, namely, that internal remedies, such as quinine, iron, preparations of iodine, cod-liver oil, &c., can be given at the same time. Dr. Sigmund attaches much importance to this fact, since such combination of treatment is often of high value.

In concluding, Dr. Sigmund insists on the necessity, in order to arrive at an estimate of the value of subcutaneous mercurial injection

in syphilis, of observations, continued for several years, as to the effect of the treatment on all the various forms in which syphilis manifests itself. Hitherto, he has found mercurial inunction to produce the most favorable results; but he could abandon it if a better remedy were found.

Traumatic fever.—The thirteenth volume of the 'Archiv für Klin. Chirurg.,' contains an essay by Dr. Billroth on the pathology of traumatic fever, supplementary to those which he has already published on this subject. On the present occasion he treats of—1. Fever following injury in man. 2. The temperature in man during the first hours after operation. 3. The temperature of the rectum in healthy dogs. 4. The influence of muscular motion on the temperature in man and dogs. 5. The direct influence of various injuries. 6. The continued mechanical and chemical irritation. 7. Of irritation of the vaso-motor nerves on the temperature of the rectum in dogs. 8. Septicæmic fever in dogs. 9. Pyæmic fever in dogs. 10. The effect of the injections of water, blood-serum, and the fluid of hydrocele, on the temperature of the rectum in dogs. 11. Critical remarks on the results of the experiments detailed in the foregoing chapters. 12. How does the inflammatory process give rise to fever?

1. In his first chapter, Billroth repeats the statement made by him in the second volume of the 'Archiv,' "that in a large number of cases, even of severe injury, there is no fever; fever is, then, not a necessary result of injury, but rather an accident." Further, in the ninth volume, he remarked that it was not only in slight wounds that fever was absent, for he had met with cases of amputation of the limbs (including even the thigh), of excision of the breast and axillary glands, ovariotomy, extirpation of the upper jaw, &c., in which little or no fever followed. Changes connected with fever may occur in a wound at any time from its origin to its perfect healing. As a general rule, fever sets in within the first two days, mostly on the second, and then lasts till the seventh day. The duration of the fever is more variable than the period of its appearance. Of 45 cases of removal of the breast and axillary glands one was unattended with any fever; in 10 patients the fever commenced on the first day, in 28 on the second, in 4 on the third, and in 2 on the fourth day. In none of them did the fever commence after the fourth day. Analogous results were found in the observation of seventeen cases of removal of the breast alone, and nineteen cases of amputation of the arm and forearm. When he commenced to investigate the subject of traumatic fever, Billroth accepted the doctrine of Schönlein, that the fever was the result of reflex irritation of the nerves of the injured part. The absence, however, of any constant relation between the extent of injury and the severity of the fever rendered this idea very improbable, and his investigations led him to the conclusion that there was a relation between the amount of destruction of the tissues and the amount of fever. Still, however, some points required explanation; the course of the fever presented remarkable variations, especially with regard to temperature. By further observation, Billroth has been enabled to eliminate certain elements which complicated the question, and to arrive at a general theory of fever,

which may be called "humoral," although in it the nervous system still has a place, especially in the explanation of disturbances of motility, such as rigors. 2. With regard to the temperature in man during the first hours after operation, Billroth recalls the fact that, in his first essay on traumatic fever, he stated that the temperature at first falls and then soon commences to rise rapidly. His examinations at that time were made on each case for three or four hours only; subsequently, however, he has noted the temperature continuously for periods varying from eight to twelve hours. He finds that the cases (twenty-one in number) can be arranged in three principal classes. 1. Those (ten) in which the temperature remained below the normal (100° Fahr.); 2, those (six) in which the temperature rose slowly above the normal; and, 3, those (five) in which it rose rapidly, sometimes reaching, in a few hours, even 104° Fahr. In most of the cases the rise commences from half an hour to two hours after the operation, being, in rare instances, preceded by a fall, which probably often occurs before the observation commences, and escapes notice; while in some instances the rise of temperature is attended by intercurrent falls. These differences cannot be accounted for by the nature of the injury and its immediate effects on the tissues; the state of the temperature depends on other circumstances, which may be called accidental. Great loss of blood lowers the temperature. This has been proved experimentally by Weber, Frese, Kettler, and Bergmann. Chloroform also has the same effect, as was pointed out in 1848 by Duméril and Demarquay; and the observation has been confirmed by Scheinesson, of Dorpat, by experiments described in an unpublished thesis, which Billroth has had an opportunity of reading. Pain, perhaps, also lowers the temperature, but in some cases it was attended with a rise. Rapid section of the large nerves, and their more or less abrupt laceration, as in the removal of tumours, may produce a depressing influence on the temperature, as is observed in shock. The exposure of the patient unclothed to the air for too long a time, especially in winter, in the operating theatre, is liable to produce a fall of temperature. To this, Spencer Wells attaches much importance in ovariotomy; and Billroth remarks that, since his attention was directed by Mr. Wells to the necessity of not allowing the temperature of the operating room to fall below 77° Fahr., he has never seen such marked collapse during and after ovariotomy as he formerly met with. In two cases observed by Billroth a temporary fall in the temperature, which had been high or rising, was produced by hæmorrhage: and in another instance of fever, daily variations were observed, which corresponded with those normally occurring in the healthy subject, there being a fall between 5 and 7 p.m. 3. In the third chapter, Billroth describes a series of researches on the ordinary temperature of the rectum in dogs. He found it to manifest frequent oscillations, which were proved, by the use of specially protected thermometers, not to be dependent on muscular action. 4. The influence of muscular action on the temperature is discussed in the fourth chapter. Very slight changes, if any, are produced in the temperature of healthy men by muscular exercise; in animals, however, the effect is greater. The artificial production of tetanus in a limb gives rise, as shown by

Leyden, to an increase of temperature in the part. 5. In the fifth chapter, Billroth examines the influence of various injuries on the temperature of the rectum in dogs. He finds that even severe lesions, such as the ligature of arteries, or long incisions through the skin, have no constant effect on the temperature in the rectum within three hours, even when the experiments are performed on animals that have been suffering from illness. 6. The application to the extremities of the nerves of mechanical and chemical irritants, such as injection of air or water into the subcutaneous tissue, irritation with croton oil or with ammonia, &c., had no constant effect in elevating the temperature in dogs, even when continued for two or three hours. 7. The influence of irritation of the vaso-motor nerves on the temperature has been studied by Billroth by means of (*a*) the introduction into the vessels of canulæ or pieces of tangle, which produced no result; (*b*) the introduction of purely mechanical embola, such as starch or powdered charcoal suspended in water. The injection of these into the systemic arteries was followed by a fall in temperature rather than a rise; when they were introduced into the jugular vein, and thus reached the pulmonic circulation, fever was not a constant result, but the temperature presented a remarkable series of tolerably regular falls and rises, such as had already been noticed by Albert and Stricker. 8. In the eighth chapter Billroth speaks of septicæmic fever in a dog. A filtered infusion of putrid muscular tissue, swarming with vibriones, when injected in large quantities into the arteries, veins, or subcutaneous areolar tissue, rapidly produced death; when injected in smaller quantities (five centigrammes or less) it produced fever of a remittent type, lasting several hours. 9. Regarding pyæmic fever in dogs, experiments are described in the ninth chapter, the result of which was that the injection of pure pus, or of pus diluted with water, was sometimes followed by fever, sometimes not. 10. A similar inconstancy of results attended the injection, in a similar manner, of water, of serum, and of the fluid of hydrocele. 11. In commencing, in the eleventh chapter, a critical examination of the results described in the preceding part of his essay, Billroth says that their great variety is one of the principal obstacles to their use in forming a theory of fever. Two phenomena only are constant—the rise of the temperature after muscular action, and after the injection of putrid matters. Referring to the effect of muscular action, he says that the artificial tetanization of limbs and the effect of voluntary muscular movements can be accepted as starting-points in the inquiry only so far as they show that an elevation of temperature is produced through irritation, direct or reflex, of the muscles. It is, however, not proved that a similar elevation of temperature can be exerted reflexly by the irritation of sensory and vaso-motor nerves. The curves presented by the temperature in the various experiments are next commented on. In some instances there was steady and tolerably regular rise; after the injection of water there was a single marked rise; and in other instances, especially after the injection of putrid fluid, pus, and starch or charcoal, there were two marked elevations. It is probable that in all the experiments the same cause produced the rise, and that this was in all cases called forth and regulated by the

same means. For some time, in the cases where the double rise of temperature was observed, Billroth attributed the first elevation of temperature to the irritation directly produced by experiment, and the second to the supervention of a secondary inflammatory process. This double rise, however, did not follow the injection of serum or of hydrocele fluid. This double elevation of temperature Billroth suggests may be explained by assuming a defect in the regulation of the production of heat. If the regulating apparatus be regarded as nervous or muscular, it may be supposed to become exhausted by excess of work; that then the rapid effect of the pyrogenic action will be held in check by the renewed energy of the regulating apparatus; and that, this again becoming exhausted, the progressive influence, though there is no new formation or increase in quantity of it, again produces a rise of temperature. In Billroth's opinion injections of water (with or without embolic matters), of putrid fluid, of pus, of blood serum, of hydrocele fluid, &c., all give rise, alike, to pyrogenic action; but the time of appearance and the duration of this vary. Putrid matters and some forms of pus (as well as other substances) depress and even destroy the regulation of heat, and hence arise the longer duration and greater intensity of the elevation of temperature after the injections of these than after that of water. If the respiration and insulation be greatly lowered at a time when the pyrogenic action is still powerful, death is attended with a rise of temperature. If, on the other hand, the pyrogenic agent paralyse the regulating apparatus of temperature before the heart and lungs fail, then the temperature falls rapidly, and there ensues a state of *vita minima* recognisable only by a few respirations and by diminished action of the heart, the temperature of the body falling to a level with that of surrounding objects. 12. In the last chapter Billroth discusses the question, In what way is fever excited by inflammatory processes? According to Zimmerann, the combustion in the seat of inflammation is the source of the excess of heat which becomes distributed over the body. According to this hypothesis the heat of the inflamed part should always be greater than that of the blood, which, however, according to Mosengeil and Billroth, is not always the case. Traube and Senator suppose the increase of temperature to be due to a diminished expenditure of caloric, while Leyden and Liebermeister hold that there is an exaggerated production of heat in fever. Another hypothesis is that the septic substances introduced into the blood serve as materials for combustion; the production of fever by the injection of water or of serum, however, renders this improbable. If the ordinary doctrine be accepted, that increased temperature in fever is due to an exaggeration of the normal calorific process, the question arises, How is this brought about?—in what way does the local inflammation exert an influence on the apparatus which regulates the production of heat? In spite of the experiments of Breuer and Chrobak, Billroth does not admit that irritation of the sensory or of the vaso-motor nerves produces fever by reflex action. The hypothesis which appears to him more probable is, that matters are carried from the inflamed or sloughing part into the blood, and act on the nervous system in such a way as to impair its power of regulating the production of heat. Billroth does not admit

that there is any difference, except in degree, between the products of inflammation and those of putrefaction. The opinion has been maintained that the introduction of septic or of inflammatory products into the blood or areolar tissue gives rise to fever by first exciting inflammation. This, however, is opposed to the fact that fever may follow the injection of water, serum, or hydrocele fluid, where, without inflammation, an influence is produced on the nervous system through the medium of the blood. It is, therefore, rational to suppose that pus and putrid matters act, not through inflammation, which is not always present, but rather indirectly on the nervous system through the blood. In conclusion, Billroth expresses his renewed conviction that that hypothesis of traumatic fever is the most probable which assumes that materials are absorbed into the blood from the focus of inflammation, and give rise to fever, probably by acting on the nervous system. This hypothesis he considers to be applicable, not only to inflammatory and traumatic fever, but also to the initial form of infectious diseases before the appearance of local symptoms.

This subject has been investigated *in its relation to gunshot wounds* by C. Hueter ('Volkmann's Sammlung Klin. Vorträge,' No. 22), and by von Recklinghausen ('Verhandl. der Physikalisch. Mediz. Gesellsch. in Würzburg').

Hueter treats of traumatic fever in its relation to gunshot wounds. Wounds made by small bullets, and regular in shape, often heal without any fever. On the other hand, severely lacerated and contused wounds are often accompanied with much fever. This difference in the course depends essentially on the amount of decomposition of the secretions from the wound, induced by vibrionic germs. In cases, especially where the tissues are moist and albuminous, and not charged with oxygen, the vibriones multiply immensely and bring about destruction of the highly complex albuminous substances, the products of the healing up of which become sources of fever and increased temperature. Traumatic fever is at first essentially septicæmic. The vibrionic germs are, perhaps, introduced into the wound with pieces of clothing carried with the projectile, or by the use of dirty charpie at the first dressing. The treatment must then consist in the prevention of the introduction of septic matter and of its absorption from the wound, and in the subdual of inflammation and fever. The septic process is best obviated by careful organisation of the hospital and local disinfection of the wound. As, however, the former is not always within the control of the surgeon, he must give more attention to the latter. Hueter recommends irrigation of the wound with permanganate of potash, which, he says, destroys vibriones. The wound is then to be dressed with charpie soaked in an oily or watery solution of carbolic acid. To prevent the absorption of septic matter, the escape of the secretions of the wound must be assisted by caoutchouc or metallic drainage tubes. The products of decomposition produce, not only fever, but also inflammation and suppuration. Traumatic fever setting in with the commencement of suppuration is of a septicopyæmic character; with the cessation of the putrefactive process and the advance of suppuration, it becomes pyæmic. But the pus itself must be

protected against putrefactive changes. As soon as the pus passes beyond the immediate limit of the wound, forming a phlegmonous abscess, this must be opened; and, on the escape of the pus, the local swelling and the fever diminish. This opening cannot be made too soon, as it is impossible to know whether the case is to be one of simple phlegmon or of rapidly spreading gangrene. No other complication in the ordinary course of a gunshot wound points to an intense poisoning so strongly as the acute septic phlegmon. When the track of the wound is lined with granulations, these form a barrier against the absorption of putrid matters; under such circumstances, however, it may be broken through, giving rise, in the course of the healing of the wound, to the complication described by Billroth as secondary fever. In nearest relation to the septicopyæmic fever stand the complications arising from putrescence of pus. Hueter believes that diphtheritic disease of the wound (including hospital gangrane) and erysipelas arise from this source. In the early stage of progress of a wound, vibriones are probably the cause of the putrefactive process. They cannot exist in fluids rich in oxygen (of which the action of permanganate of potash gives proof). Their action on the living tissues is probably prevented by the oxygen contained in these. In pus containing oxygen there appear animal organisms belonging to the genus *Monas crepusculum;* in a chemical sense, these are sources of putrescence, inasmuch as they cause the breaking up of the more complex combinations. These monads produce irritation and inflammation of the living tissues. As they can live in oxygenated fluids they may penetrate in vast numbers through the finest lymphatic passages into the blood, and may even appear in the urine. Hueter believes that traumatic diphtheritis and erysipelas are produced by the wandering of these monads into the living tissues. These speculations of Hueter derive increased importance from the researches of von Recklinghausen, who, at a meeting of the Physico-medical Society of Würzburg in June, 1871, ascribed to the development of parasitic organisms the presence of multiple small purulent deposits in the lungs, kidneys, spleen, liver, heart, brain, and eye, which correspond with what had been described by Virchow as capillary embola. The organisms were those described by botanists as schizomycetes, zooglœa, or micrococcus; and are distinguished from the detritus of tissues by their unchangeability in acetic acid, glycerine, and solution of soda. They seem in all essential characters identical with the organisms described by Buhl, Oertel, and Nassiloff as occurring in diphtheria, and by Klebs in pyelonephritis. They occur, not only in the blood-vessels, but also in the alveoli of the lungs and in the urinary tubules. They were much less abundant in the arteries than in the veins. The absence of changes in the endocardium contradicted the idea of an embolic origin. Recklinghausen showed these purulent deposits with micrococci in pyæmia, typhus, and phthisis, with hectic occurring four weeks after delivery, in cases, therefore, where previous lesion of tissues had afforded an opportunity for the introduction of germs. Small myocardial and nephritic deposits with micrococci were found in the body of a boy, eleven years old, who died at the end of three days with

symptoms of articular rheumatism, without any injury of the tissues. According to Hueter the most simple result of the decomposition of pus is ulcerative destruction of the granulations, which manifests itself as diphtheritis, and, in an extreme stage, as hospital gangrene. Diphtheritis in its mildest form may be successfully combated by the use of carbolic acid in the proportion of one part in twenty, applied four times daily. Hueter prefers the watery to the oily solution. In diphtheritic inflammation attacking the areolar tissue, spreading rapidly with redness and swelling, and leading to the formation of fœtid pus, incisions must be made and the tracks of the wound freely irrigated. In the pulpy and gangrenous form of traumatic diphtheria Hueter prefers the actual cautery to all other treatment. He believes that while the cautery destroys the monads, its action extends beyond the tissues that are burnt. Much may be done, in Hueter's opinion, to prevent erysipelas by the use of disinfectant dressings. He praises tar as a means of arresting the extension of erysipelas; it is applied in the form of an ointment consisting of two parts of tar and one of lard, which is energetically rubbed in with the hand for four hours, and repeated two or three times. Other observers, however, have failed to find this method efficacious even though the inunction has been repeated twenty times.

Fever following surgical operations.—Mr. Spencer Wells has given some clinical lectures on this subject ('Med. Times and Gazette,' Jan. 27 and April 27, 1872). In the first lecture he mentions three cases in which high temperature and other signs of fever were clearly due to inflammation and suppuration of ovarian cysts, or to decomposition of the fluid contents of the cysts, where the fever subsided almost immediately after the removal of the cysts, and the patients completely recovered. In all these cases the fever was of the type now commonly termed *pyæmic*. He then mentions a case of what might be termed *uræmic* fever in a patient, æt. 16, admitted with what appeared to be an ovarian tumour. An exploratory incision was made, and Mr. Wells at once came upon the cæcum, its appendix and the ascending colon which had been pushed forwards by the cyst behind. He then knew (what was suspected before) that it was a case of *hydronephrosis*. The cyst was tapped and twelve pints of fluid removed. The opening in the cyst was fastened to the abdominal wall. Before the operation the temperature was 97·4°; afterwards it rose to 100·2°, 101·3°, and 102·4° at the end of ten hours—a rise of 5° in ten hours. The morning after the operation the temperature was lower and she seemed better, then it rose again, more fluid was let out and a glass tube was inserted. On the second day, the temperature rose to 104·2° in the morning, and 105·4° in the night. The third day in the afternoon it rose to 108·4° and at night it was 110°. She lived till noon of the fourth day, her temperature for some hours having been upwards of 111°. Mr. Wells says, "Two very puzzling questions follow—First, how did the operation check the elimination of urea in this girl and lead to its presence in excess in her blood, or to the ammonia resulting from the decomposition of urea? and secondly, how does uremia lead to fever heat or hyperpyrexia?" The post-mortem showed the left

kidney was almost useless, and the right kidney was converted into a cyst holding twelve pints of fluid. "Why no symptoms showed themselves before this cyst was emptied, why they came on almost immediately afterwards, and why they continued (although a free discharge of urinous fluid was kept up from the cyst) I cannot explain." "We are led to the suspicion that the opium which was given to relieve the pain, or possibly the chloro-methyl by which anæsthesia was kept up, may have been the cause of the first stoppage in the elimination of urea, or else that some injury to the nerves of the kidney may have been the first step in the fever process." The second question is answered by appealing to the consideration of the influence of the nervous system upon the production and regulation of heat.

Traumatic erysipelas.—Wilde states ('Deutsches Archiv für Klin. Med.,' x) that he was led, on the recommendation of Volkmann, to examine the effect of subcutaneous antiseptic injections in the neighbourhood of the affected part. He used for this purpose a solution of one part of sulphocarbolate of soda in twelve of water; from three to five injections (each 38 grains) of this solution were made, either at different points around the diseased part or even directly into it. In five cases, on the first day, the temperature did not rise much in the evening; on the next day (two injections having been made) there was a fall, and the erysipelas had begun to disappear. On the third day, œdema alone remained. ('Wien. Med. Wochenschr.,' 1872, No. 35.)

Hospital gangrene.—During the Franco-German war, those among the wounded in the hospitals of Berlin who were attacked with hospital gangrene were transferred to special barracks, which were placed under the care of Dr. Jacob Heiberg, of Christiania. Dr. Heiberg has published in 'Virchow's Arch.,' liii, the result of the observations made by him from September 1, 1879, to March 15, 1871. In all the Berlin cases the gangrene was of the ulcerative form; it was always of local origin, although there were cases where the aperture of entry was small, in which the disease commenced in the deep-seated parts, and produced constitutional disturbance before it was detected. In an open granulating wound the granulations would break up over round or angular patches, which gradually increased, and at last became confluent. The wound assumed a yellow grey colour; and here and there were spots of a clear red, or brownish-red colour, the result of effusion of blood into the granulations. The whole surface became excavated; the destructive process then seized on the subcutaneous and intermuscular connective tissue, and the skin was often deeply undermined to a much greater extent than was visible externally. The skin swelled first at the margin, becoming tender and red. In a cicatrix the process of destruction went on in small segments. The muscles, nerves, bones, and arteries were at last laid bare, covered with a firm greasy mass, or with a yellow-green stinking pulp. The large cavities of the body were not found invaded in any case, and gangrene seldom appeared on the trunk. In eighty-nine cases under observation, secondary hæmorrhage occurred in seven. In six of these it took place from arteries, and in one it was capillary. In two cases repeated arterial ligatures were applied, but both died. In the remaining cases

the hæmorrhage was treated successfully by cauterisation and plugging. The fever was always secondary, and presented the type of fever arising from absorption of morbid matter. It always occurred in cases where the gangrene spread irregularly into the deep parts; when the gangrene was superficial, it was observed only in exceptional cases. The temperature presented no special type, the curves, Dr. Heiberg says, "were as irregular as the Alps." In the treatment, gastric disturbance was allayed by low diet and iced water; beyond these, no internal remedies were used. The treatment was throughout local, and consisted almost exclusively in cauterisation with chloride of zinc. Permanganate of potash was found by Heiberg to be of no use. It is alleged by American surgeons that very mild cases heal readily under the use of water dressing and fresh air; but Heiberg doubts whether such can be cases of true hospital gangrene, which spreads mercilessly under such treatment. The granulations in the neighbourhood of a necrosed piece of bone may undergo a process of destruction, bearing a close resemblance in appearance to incipient gangrene. The manner of extension of the disease is the only trustworthy ground of diagnosis; and Heiberg daily marked, with coloured chalk, on an iron wire network the extent of the disease, so as to observe its progress accurately. When the diagnosis was clearly made out chloride of zinc was at once applied. It was dissolved in a small quantity of water, so as to form a mass of the consistence of oil, in which small pads of cotton-wool were dipped; these, having been gently pressed, were laid over the whole surface of the sore. If the gangrene had spread deeply, free incisions were made; the more extensive these were, and the more the sore was laid open, the sooner was the gangrene arrested. Chloride of zinc has the advantage over nitric acid of being less dangerous to clothes, hands, and instruments. After the cauterisation the sores were dressed with oil for twelve hours; after this, lukewarm water dressing was applied four times daily. The scars often remained till the eleventh day, and it was found that attempts to remove them by mechanical means produced bleeding and pain, without being successful. Paralysis and anæsthesia were not met with, notwithstanding the depth at which the caustic was sometimes applied. Under this treatment one death only occurred, and in this instance the patient died under chloroform, when the caustic was about to be applied. There were six deaths from pyæmia in patients in whom the gangrene had been arrested.

An elaborate paper on this subject by Dr. Jones will be found in the 'Surgical Memoirs of the War of the Rebellion,' published for the U. S, Sanitary Commission, and a review of the same in the 'Am. Journ. Med. Sciences,' Oct., 1871, 456.

Use of the tracheal tampon.—Dr. Junker writes on the employment of the tracheal tampon, as advocated by Dr. Trendelenburg and practised by Langenbeck and others. The danger of suffocation from the passage of blood into the trachea in operations about the face, &c., while the patient is under the influence of chloroform, suggested to Dr. Trendelenburg the plan of administering chloroform through an opening in the trachea, the latter being at the same time plugged. After various trials the canula and tampon are now made in one. "The tampon consists of a delicate, double-walled india-rubber tube, of about 3·4

centimètres in length (1·36″). The walls of the tube are united at their extremities, so as to form a cavity, which is inflated by means of a small tube opening into the external wall. The internal wall closely embraces the vertical portion of the tracheotomy-canula. This tampon when inflated within the trachea, thoroughly plugs the space between canula and and the windpipe." The air can be let out to withdraw the plug. "A small india-rubber balloon, with an ivory nozzle, fits into the inflating tube. After inflation the tube itself is closed by means of a small metal clamp. The point of the canula is furnished with a raised shoulder of about one millimètre (·04″) in thickness. A similar shoulder exists above the plug, so that the latter is firmly retained between these two shoulders. By this arrangement the tampon is prevented from slipping when passing through the wound." The tracheotomy is performed, a sufficiently large opening being made, the canula and tampon (collapsed) inserted, and then the latter is inflated. The anæsthetic is administered by a funnel-shaped instrument of japanned tin. Its outlet is furnished with an india-rubber tube, stiffened by a spiral wire, which, by means of a cone-shaped nozzle, fits into the external aperture of the tracheotomy-canula. Over the inlet of the funnel a raised, wire frame covered with dimity is placed, and on this the anæsthetic is dropped. A circle of small holes drilled round the edge of the funnel assists the admission of fresh air. After the operation, before the removal of the plug, the larynx should be washed out with warm water, and the clots removed through the upper angle of the incision by means of a syringe with a fine nozzle. A common tube is inserted till all danger of hæmorrhage has passed way. ('Med. Times and Gaz.,' May 4 and 25, 1872.)

In the 'Berliner Klin. Wochenschr.,' for September 2, 1872, Dr. Heiberg, of Christiania, relates a case, in the practice of Dr. Schoenborn, in which this plan was followed with good results. The patient, a man, æt. 36, had cylindroma of the upper jaw. By following Dr. Trendelenburg's method, it was found possible to maintain complete anæsthesia throughout the operation. In this case, however, the india-rubber tampon was not sufficient to prevent the entrance of blood into the larynx, and it was necessary to introduce plugs of wadding from the mouth. The patient was discharged cured on the twentieth day from the operation.

Bronchotomy.—Mr. Prescott Hewett gives a clinical lecture on the operations on the windpipe. ('Brit. Med. Journ.,' Jan. 27, 1872.)

Laryngotomy for removal of a half sovereign impacted in the larynx.—Mr. H. Smith records the case of a tipsy shoemaker, who put a half sovereign in his mouth and it disappeared. Dr. Johnson saw it with the laryngoscope impacted between the vocal cords transversely, its reverse looking upwards. It was found impossible from its position to grasp its edge. Mr. Smith performed laryngotomy, and, after a little trouble, extracted the foreign body. A view of it, *in sitû*, is given. ('Brit. Med. Journ.,' Jan. 7, 1871, 7.)

Foreign body in the larynx; removal.—A female child, æt. 18 months, had been suddenly seized with difficulty of breathing five days previously. It was not known that a foreign body had entered the larynx,

but tracheotomy was performed high up. Something was felt, and on cutting through the cricoid cartilage a dress-hook was found attached to one of the vocal cords. After much trouble the hook was removed. The child died on the seventh day, probably owing to the damage necessarily caused by the removal of the awkwardly and firmly fixed hook. The patient was in the Ormond Street Hospital. ('Lancet,' Sept. 30, 1871, 468.)

A case in which a foreign body was removed from the larynx of a child eight years old is recorded by Dr. Bennett. The child had swallowed a plum-stone. Tracheotomy was performed, but the stone could not be found, notwithstanding careful search with probes by himself and Mr. Butcher. After some days it was clear it was impacted between the cords. The thyroid cartilage was divided and the stone removed, about three weeks after the child first came under care. The child recovered voice, &c. ('Dub. Quart. Journ.,' Aug. 1871, 29.)

Mr. Teake records the case of a man who, while drinking, sucked a *thin plate of bone into his larynx*. Examined with the laryngoscope the bone was seen to be a long, thin piece, impacted between the thyroid cartilage in front and the arytenoid behind. It was seized with forceps by Mr. Teale, but it could not be removed. Tracheotomy was then performed. Representations of the bone are given. ('Brit. Med. Journ.,' Jan. 7, 1871, 7.)

Mr. Stokes says, "As I am not aware of any case in which the difficult and hazardous operation of tracheotomy, *performed twice on the same subject*, has been recorded, the particulars of the following one must, doubtless, be considered of much surgical interest:"

The patient was a woman, æt. 30, who suffered from syphilitic disease of the larynx. Fifteen months previously she had had tracheotomy performed. The tube was only worn a short time, the wound healed, and the patient became free from all laryngeal distress. Six weeks previously the difficulty of breathing had returned. A second operation was performed, but with great difficulty. Mr. Stokes found Langenbeck's double tracheotomy-hook of great service. She continued to wear a tube afterwards. ('Dub. Journ. Med. Sci.,' Dec. 1872, 436.)

Dr. Buchanan, in the 'Brit. Med. Journ.,' March 4 and 25, 1871, gives an abstract of results of thirty-nine cases in which he performed tracheotomy.

Dr. Eben Watson narrates two cases for chronic laryngeal disease. In one, the patient fainted during chloroform inhalation, and was brought round with difficulty; he fainted without chloroform, and finally was found dead in bed, probably having fainted when no assistance was at hand. Dr. Watson points out the bearing of such cases in the administration of chloroform. In the second case no special complication existed. Dr. Watson does not lay much stress on the part of the trachea opened, but he recommends sparing use of the edge of the knife after the skin has been divided. He remarks on the length of time the tube should be worn. ('Lancet,' Aug. 3, 1872, 145.)

Tracheotomy-tube removed from the trachea.—A case, in which a tube slipped into the trachea, owing to the separation of the shield, is recorded in the 'Lancet,' Jan. 27, 1872, 113. It was removed by Mr.

Holthouse, by enlarging the wound and placing the patient in a prone position.

Dr. J. W. Ogle and Mr. H. Lee record a case of tracheotomy in which the tube, having become detached from its shield, escaped into the trachea, and was removed by a second operation fourteen months afterwards. ('Med. Times and Gaz.' Sept. 21, 1872, 324.)

Parotitis: tonsillitis: tracheotomy.—Dr. Packard records the case of a child, aged four years and nine months, on whom he performed laryngo-tracheotomy, on account of dyspnœa from tonsillitis, complicating mumps. Bleeding occurred just as he opened the trachea. The child survived eight hours. ('Amer. Journ. Med. Sci.,' April, 1872, 404.)

Opening the larynx for the removal of morbid growths.—Mr. Durham read a paper on this subject before the Med.-Chir. Society. He details 5 cases which have come under his own care, or under that of his colleagues, in which section of the cartilages of the larynx has been performed for the removal of growths. The first case was that of a girl, nine years of age, who was admitted into Guy's Hospital with urgent dyspnœa. Tracheotomy was performed. In the course of the next four years she was repeatedly seen, but no laryngoscopic examination could be satisfactorily carried out. But at the end of that time Mr. Durham succeeded in obtaining a view of the larynx and found it blocked up by warty growths. Shortly afterwards, chloroform having been administered through the tracheotomy canula, an incision was made, with a curved, sharp-pointed knife, straight through the superficial structures, the crico-thyroid membrane and the mucous membrane of the larynx, and then directly upwards in the middle line, through the thyroid cartilage, &c., thus dividing all the structures by one incision as high as the thyro-hyoid membrane, which was only slightly cut. The cricoid cartilage was subsequently divided in order to give more room. When the edges of the wound were drawn apart it was seen that the whole larynx was studded with growths. Only a few small ones were below the vocal cords. All were carefully removed; some were cut off with scissors, others were twisted off with forceps. The wound was closed with sutures and strapping. The next day the patient could breath through the larynx and could produce audible sounds. On the seventh day the wound had healed. On the tenth the canula was removed after having been worn for four years. More than four years after the operation the patient was a fine, thoroughly healthy woman, breathing, speaking, and singing as though she had never had anything the matter with the larynx. The second patient was a lad, aged seven years. Tracheotomy had been performed nine years previously. An incision was made gradually from above downwards, through all the structures as low as the opening in the trachea. The whole larynx was full of growths, which extended above and below the vocal cords. All were removed. He recovered, and nine months afterwards was reported breathing well and the condition of the voice was satisfactory. Difficulty was experienced in closing the old tracheotomy wound in this case. It was finally accomplished after paring the edges. The third patient was a girl, aged eight years. Four years before, tracheotomy had been performed. A

similar proceeding to that adopted in the last case was carried out. The fourth patient, under the care of Mr. Bryant, was a boy, aged three years. Tracheotomy was first performed and then, by means of a curved bistoury, an incision was made upwards from the opening in the trachea. Some hæmorrhage, as in the other cases, then occurred, but was quickly stopped by exposure, torsion of vessels, &c. In the course of a fortnight the canula was removed, and in three weeks the wound was entirely healed. More than a year later he was in excellent condition. The fifth patient, under the care of Mr. Davies-Colley, was a boy, four years of age. Tracheotomy was first performed and then, on a subsequent occasion, an incision in the middle line was made through the cartilages and upper rings of trachea. The growths were most exuberant. A month later the tracheotomy tube was discontinued in the day time, but subsequently its use had to be resumed. A second operation was performed seven months later and has apparently been quite successful. In the second, third, and fifth cases nitrate of silver was applied after the removal of the growths, in the fourth perchloride of iron was used.

Appended to the paper are notes of all the cases in which similar operations have been performed of which the record is accessible. The cases are 32 in number; including his own, 37. In at least 19 of these the operation was *completely successful*, in 7 *partially successful*, and in 4 *temporary benefit* resulted. (In a note 2 other successful cases are mentioned.) In 3 cases the result was negative. Five cases were not completed but were progressing favourably. In 2 cases death appears to have resulted from the operation. Dr. Mackenzie, in his monograph on 'Growths in the Larynx,' gives 9 out of 28 as the proportion of deaths, but Mr. Durham considers that 7 of these deaths occurred from circumstances unconnected with the operation. He gives the facts of the cases. Mr. Durham remarks on the difficulties attending the operation. First, with regard to hæmorrhage. If the incision be kept strictly to the median line it is impossible that any large vessel can be wounded. Any wounded vessel is fully exposed. The wound being *kept well open*, if blood pass down the trachea it is soon coughed up again. Bleeding from the interior of the larynx is easily controlled by pressure or styptics. The introduction of a canula, if not already in position, and the insertion of a small piece of sponge into the trachea above the canula may afford material aid in securing free respiration and hindering the flow of blood down the air-passages. The spasmodic movements of the larynx and the paroxysms of cough often cause delay, but these generally subside after a time. Division of cartilages.—If the opening is commenced below and a grooved director passed up between the vocal cords, their safety may be absolutely ensured, but such a proceeding seems to Mr. Durham unnecessary. He prefers dividing the cartilages by cutting through them from without inwards and from above downwards, and separating, slightly, the alæ of the thyroid cartilage, before actually penetrating the mucous membrane. In the removal of the growth no great difficulty will be experienced unless some important part of the larynx is involved, then so much as is necessary must be removed with the growth. As a general rule it is probably best to begin by dividing the thyroid cartilage and crico-

[illegible] towards [illegible] cases in which [illegible] the [illegible] have [illegible] the [illegible] few in [illegible] The results [illegible] the dangers and difficulties [illegible] are neither so numerous nor so considerable as have been represented and commonly supposed, and [illegible] has been so marked and so [illegible] in any such case as may seem appropriate [illegible] 'Med. Chir. Trans.,' [illegible]

In a most complete monograph, well illustrated, Dr Mackenzie enters thoroughly into the consideration of the whole subject of laryngeal growths. He details [illegible] cases treated by himself, and also gives a résumé of those treated by others. [illegible] of his cases in which growths were removed per vias naturales [illegible] a cure resulted.

Stricture of the trachea.—In an article on operations on the air-passages in the 'Archiv für Klin. [illegible],' xii, Dr Trendelenburg relates the case of a girl, aet. [illegible], who came into hospital in Berlin in June, [illegible], suffering from dyspnoea and complete aphonia; she had for several years had hoarseness, difficulty of swallowing, and shortness of breath. On the [illegible], Dr Trendelenburg opened the trachea below the thyroid body, on account of an urgent attack of dyspnoea. In performing the operation he noticed that the peritracheal tissue was much thickened and indurated. Four months later an ulcer formed at the point where the canula pressed, and increased rapidly. A second tracheotomy was accordingly performed above the thyroid body, but it was now found that the canula would not pass, in consequence of a stricture, which would only admit a very fine urethral bougie. An attempt had been made at first to examine the parts with the laryngoscope, but had failed in consequence of the diseased state and faulty position of the epiglottis. A long, slender canula was introduced with an india-rubber plug, into the lower opening; the plug was inflated, and pressure was exercised on the granulations surrounding the opening, so that they now disappeared. Attempts were now made to treat the strictured portion by internal incision; but the only result was to produce emphysema of the neck. Dr Trendelenburg accordingly, on March 19, 1870, laid open the trachea from the cricoid cartilage to the lower opening; the tissue cut like cartilage. Conical pieces of tin, gradually increased in size, were introduced. The patient, who had been unable to speak, was able to utter sounds at the end of five days, when the canula and pieces of tin were removed. After three weeks, the strictured part was found to be dilated to the extent of 1·25 centimètre; the wound in the trachea was nearly healed, but respiration through the glottis was still very imperfect. On examination, it was found that the obstruction was caused by the epiglottis, which was ulcerated and much swollen and

inclined backwards. A portion of it was removed with good effect; the breathing, however, did not become quite free, as there was paresis of the vocal cords, which yielded, however, to the application of electricity continued for some time. The canula could not be removed, as this was in a few hours followed by renewed shortness of breath. The patient, however, gained the power of walking and ascending stairs with the canula closed; and in time she learned to introduce bougies herself through the glottis.

Joint disease, necrosis.—Mr. Treves narrates some interesting cases of necrosis of the ends of bones leading to joint disease, and in which after the removal of the sequestra the latter subsided. A boy, æt. 11, was admitted with disease of the left knee following necrosis of the end of the femur. He also suffered from necrosis of the lower end of the right tibia. The disease probably followed on an attack of rheumatic fever eleven months previously. The knee was much swollen, was contracted, and there were sinuses. After five months' residence in the hospital at Margate, Mr. Treves made an incision below and on the inner side of the joint, and removed in three fragments a large sequestrum, which had become separated from the lower end of the femur. It was between two and three inches long, and about an inch in diameter, and corresponded to the lower third of the shaft of the femur; passing downwards it had been discharged through the condyles and the knee-joint. Recovery with useful limb followed. Sequestra had previously been removed from the tibia on the inner side. A boy, æt. 7, had disease of the knee and a sinus in the popliteal space, probably of twelve months' duration. After about nine months' residence, Mr. Treves removed a sequestrum from the back of the outer condyle of the femur. The boy was discharged able to walk on the limb. A boy, æt. 10, was admitted with disease of the hip. A sinus, on the front and outer side, led to bare bone. At the end of about nine months a sequestrum was removed from the inner side of the joint, the sinus having passed under the femoral vessels and opened on the inner side. The child did well. A boy, æt. 7, had disease of the ankle. After seven months a sinus on the outer side was enlarged, and a small sequestrum, which had separated from the lower end of the tibia towards its fibular side, and lay in contact with the joint, was removed through the joint. Four months later the child could walk with ease. The average time required for the separation of the sequestrum was about eighteen months. ('Lancet,' Nov. 18, 1871, 712.)

Disease of joints from continued rest.—Dr. Menzel writes on this subject in the 'Archiv für Klin. Chirurgie,' 1871. He remarks that Cloquet and other authors observed some time ago that ankylosis was sometimes the result of prolonged disuse of joints. The earlier stages of the condition, of which ankylosis is the termination, were first observed by Teissier and Bonnet, in the examination of six individuals who had suffered from fractures of the lower limbs, and had thereby been prevented for long periods from using the joints. They found in the joints bloody synovia, swelling, serous infiltration of the synovial membrane, and ulceration of the cartilages. Menzel has tested the

correctness of these observations by experiments on dogs and rabbits, the extremities of which were encased in plaster of Paris, and examined at periods varying from one to ten weeks. In most cases, at the end of ten weeks, the same appearances were found in young rabbits as had been described by Bonnet and Teissier. In one case there was crepitation in the joint. The synovia contained numerous red corpuscles and epithelial cells; and the cartilages were found to have undergone proliferation of the nuclei, with conversion into a fibrous tissue rich in spindle-shaped cells. Menzel concludes that the retention of the articular surfaces in contact by means of the surrounding elastic structures has a mischievous effect; and that the ulceration of the cartilages is analogous to bedsores, arising as it does from the constant pressure of the same points against each other.

Hip-joint Disease.—A clinical lecture by Dr. Sayre on the treatment of hip-joint disease with a description and figure of his own splint for keeping up extension will be found in the 'Brit. Med. Journ.' July 22, 1871, also 'Med. Times and Gazette,' July 29.

Dr. Morton publishes a lecture on the subject of excision in disease of the hip ('Brit. Med. Journ.,' Jan. 20, 1872).

Chronic Rheumatic Arthritis.—Numerous specimens have been exhibited by Mr. Hutchinson ('Path. Trans.,' xxiii, 194).

Loose Cartilages in the knee-joint.—Mr. Square records twenty-four consecutive and unselected cases, cured, without anxiety or accident, by subcutaneous incision ('Brid. Med. Journ.,' Sept. 23, 1871).

Mr. Lister speaks of the removal of loose cartilages under the antiseptic dressing ('Brit. Med. Journ.,' Aug. 26, 1871).

Spina bifida treated by tapping and pressure.—A child, æt. 25 days, was brought into the San José Hospital, in Lisbon, under the care of Dr. Camara Cabral, on November 21, 1871. It had spina bifida in the lumbo-sacral region; the tumour was 40 centimètres in circumference, and measured 17 centimètres, longitudinally, and 10 transversely. It was transparent and fluctuated, but appeared to contain solid matter as well as fluid. Convulsions were not produced by manipulating the tumour, nor was there any paralysis or other sign of injury of the nervous system. On the 29th it was tapped by means of Dieulafoy's aspirator, and 409 grammes of yellow, transparent fluid, containing much albumen, were removed. Compression by means of adhesive plaster was employed. Some vomiting and loss of appetite were the only symptoms that followed the operation. The tumour refilled in the course of a few days, it was therefore again tapped, 250 grammes of fluid being removed, and on December 14th, 425 grammes were drawn off. On two subsequent occasions 175 and 125 grammes were removed by the aspirator; the fluid had become more albuminous than it was at first. The last two operations were followed by meningitis, which yielded to remedies. The child recovered, and was exhibited by Dr. Cabral at a meeting of the Lisbon Medical Society, on February 17. ('O Correio Medico de Lisboa,' March 1, 1872.)

Dr. Morton records a case cured by injections ('Brit. Med. Journ.,' April 6, 1872).

Ulceration of the jugular veins.—Dr. Gross writes an elaborate paper on ulceration of the jugular veins, communicating with an abscess or an open sore. He also alludes to the cases which have been recorded, in which arteries have been opened by ulceration, &c., and to Mr. Bir-

kett's case of abscess of the neck opening the arch of the aorta. He says that erosion of the blood-vessels is by no means to be anticipated in cases of abscess, &c., of the neck, as they are strengthened by fibrinous deposits outside, and often coagula inside. The pressure of an abscess on a vein often causes its obliteration, whereas arteries appear more disposed to ulcerate. Having met with a case of fatal hæmorrhage from perforation of the internal jugular vein, in consequence of diffuse or gangrenous cellulitis, after an attack of scarlatina, he turned his attention to the subject. He gives the details of twelve cases, from which it would appear that ulceration of the jugular veins attacks the two sexes with equal frequency, and to be eminently a lesion of early life, since 10 of the 12, in which the age is noted, occurred between the second and thirteenth year, the average being the sixth year, while in the remaining 2 the patient had attained the age of maturity. The efficient cause of the destruction of the coats of the vessels was, in 11 instances, diffuse cellulitis following their course, and that disorder must be regarded, in at least 10 of the cases, as one of the secondary expressions of the morbid poison of scarlet fever, developed immediately after its termination or during convalescence from it. When the cellular inflammation has culminated in an abscess which has been opened by the surgeon, or has opened spontaneously, hæmorrhage from perforation of the jugular veins may be looked for within the first week. In 2 of the cases the bleeding was immediate; in 1 it was deferred until the seventh day; but the average date of its appearance was the fifth day. After hæmorrhage has once occurred, investigation of the cases narrated shows that a fatal result may be anticipated. In 3 instances it occurred immediately, 2 being found dead in their beds; 1 was fatal in a few hours; while in 6 other cases, in which the date is recorded, it varied from thirty hours to the fifth day after the first hæmorrhage, the average being the third day, and then from repeated recurrence of the loss of blood. Three distinct pathological processes are probably included in the perforation of the vein. In 1 case there was probably a limited necrosis from cutting off of the vascular supply, an eschar of upwards of an inch in extent having plainly been visible before death. In another the vein gave way from the loss of the support of an abscess. In all the other cases the ulceration was due to progressive inflammatory changes or diffuse (suppurative) phlebitis. In only 2 was there thrombosis of the affected vessels. In one case the coagulum was of a limiting nature, in the other the thrombus had softened, and led to secondary obstructions and metastatic deposits. The appearance of the ulcer is noted in 11 instances. In 1 the external jugular vein was "perforated like a sieve, in a space three quarters of an inch in extent." In another there were two openings in the internal jugular vein, one of about the size of a pea, and a second in the form of a slit half an inch in length. In all the others the opening was single. In 2 it was circular, while in the others it was of an oblong or ovoidal form, and varied from four to twelve lines in length. In only 1 was there any inflammatory appearances about the margins of the opening or of the internal coat of the vessel. In only 2 cases were the edges of the ulcer irregular or jagged. In the remainder it appeared as if the walls of the vein had

been removed by a sharp scalpel. In only 2 of the cases did the contents of the vein communicate with a closed abscess, and blood flowed at once upon an incision being made into it. It is scarcely possible to diagnose such a condition. In 2, however, there were suspicious symptoms. In 1 there existed "a certain tremor, which was perceptible by the hand, and noise which could be heard with the ear," while, in the other, pulsation was very evident, and it could not be determined whether it was resident in the tumour or communicated to it by the carotid artery. In both cases there were no signs pointing to the presence of venous blood, but a careless examination might have given rise to the supposition of an aneurism. Introduction of air was only met with in one instance. A month before the death of the patient, while dressing her neck, there was slight bleeding, followed by a gurgling sound, &c., and alarming syncope, from which she gradually recovered under the use of stimulants. "The practical lessons to be deduced from the study of the facts contained in this paper are,—First, that acute, destructive inflammation of the tissues of the neck and deeply seated abscess, which has existed for some time and suddenly takes on acute action, may, if unchecked in their progress, lay bare and perforate blood-vessels, and that this result is to be feared more particularly when diffuse cellulitis follows grave forms of scarlatina or other acute specific diseases. Secondly, that scrofulous abscesses and ulcers are not always indolent, but may, under favorable circumstances, that is, in an enfeebled, broken-down condition of the system, rapidly assume a phagædenic condition, and lead to the same complication. And thirdly, that the large arterial and venous trunks are more liable to be involved than their branches." Incisions should be made early to check the inflammation. If the surface of the sore be unhealthy, chloride of zinc in solution, &c., may be used. Poultices should be avoided. If the gangrenous action be extensive and spreading, the hot iron may be lightly applied. The general condition of the patient must be attended to. As to the treatment of the hæmorrhage little can be said, as all the cases proved fatal. In all the cases in which it is possible to apply a ligature, and the disorganized condition of the parts does not contra-indicate its employment, it should be resorted to in preference to other hæmostatic agents. It is perfectly safe, and is not open to the objections which can be justly urged against compression.* In the cases detailed the latter was utterly inefficient. If it be tried it should be in the following way:—An assistant's finger should be placed above the wound, a small piece of sponge should be held in contact till it adheres to the orifice, and should then be supported with a compress and adhesive strips. Instead of the sponge, a piece of lint dipped in dilute solution of persulphate of iron may be employed. This will exercise a beneficial influence in checking gangrenous action and correcting the offensive discharge. ('Am. Journ. Med. Sciences,' April, 1871, 337.)

Intrabuccal resection of the inferior maxillary nerve.—Dr. A Menzel, of Vienna, describes in the 'Archiv für Klin. Chir.,' xiii, two cases in which resection of the lower maxillary nerve was performed by him and

* See 'Retrospect,' 1867-8, p. 283, and 'Am. Journ. Med. Sciences,' Jan. and April, 1867.

by Dr. Billroth in the manner proposed by Paravicini, of Milan, in 1858. The corner of the mouth being held wide open, an incision three centimètres long, running obliquely from within outwards, is made along the anterior border of the ramus of the jaw through the skin and the anterior fibres of the internal pterygoid muscle. The connective tissue between the pterygoid and the periosteum is then torn through with the finger, the nerve is easily reached at its entrance into the dental canal, and a portion is removed. The lingual nerve is easily avoided by taking care to trace the nerve to its entrance into the bone. In Menzel's case the nerve was raised on a hook, and a piece four lines long was excised. The bleeding was very slight. Billroth raised the periosteum from the bone, and having surrounded the nerve with a thread, cut out a piece ten centimètres long. Menzel says that the intrabuccal method of excision of the lower dental nerve is attended with less extensive injury and is less dangerous than the other plans; that it leaves no disagreeable results—such as scars, facial paralysis, or salivary fistula; that the nerve is readily rendered accessible, and may be excised even to the extent of ten centimètres; that the hæmorrhage is slight; and that the operation is not difficult of performance. Dr. Menzel refers to a case described by Dr. Meusel, of Gotha, in the 'Deutsche Klinik' for November, 1871, in which the intrabuccal operation was performed, but both the dental and the lingual nerves were divided. He believes that this is the first case in which the operation has been performed on the living subject. Paravicini operated only on the dead body, and up to a recent date his proposal had no supporters, but several opponents.

Spasm, &c., of the arm; operation; exposure and extension of the nerves of the brachial plexus; recovery.—In the 'Lancet,' Nov. 30, 1872, will be found a detailed analysis of an account of a bold operation performed by Prof. Nussbaum, which resulted in a physiological triumph. The patient was a soldier who had been injured in the war. He suffered from spasm of the arm, from anæsthesia, and from pain. Having once given relief by stretching the ulnar nerve in a case of spasm of the inner fingers, Prof. Nussbaum determined to operate on the present case, having first of all received a report from Prof. Voit as to the probable seat of the mischief. He laid bare the ulnar nerve and stretched it, then the nerves around the axillary artery and stretched them, and lastly the cords of the brachial plexus. These were individually and vigorously pulled. The man was cured by the operation. Dr. Gärtner has operated on another patient.

Transfusion of blood.—Dr. Hildreth writes on the kind of cases in which it is useful. Defibrinated blood should always be used, human, if possible; but successful cases have occurred with the blood of calves, lambs, sheep, &c. The instrument he uses consists of an india-rubber hand-ball in the centre of two feet of tubing. To one end is attached a funnel-shaped, metallic vessel, double cased, with a tube through which hot water is to be poured between the cases, and also a convenient handle. To the other end is attached a metal, capillary point to enter the vein. About five inches from the point is inserted a short segment of glass tubing, in order that it may be known when the

supply of blood is exhausted, and to avoid injecting air. If the funnel is held up, the blood will usually flow; if not, the hand-ball can be used. (Am. Journ. Med. Sciences. Jan. 1872, 105.)

Dr. Winants records a case in which he employed transfusion. The carotid artery of a lamb was opened to supply the blood, which was not defibrinated. The patient decidedly rallied, and survived for a fortnight. At the time he appeared moribund. (Ibid. Jan. 1872, 108.)

Dr. Aveling records a successful case of immediate transfusion in hæmorrhage after parturition. A man employed as coachman furnished the blood. A tube was inserted into a vein in his arm, and the india-rubber portion of the apparatus filled with water affixed, another tube having been inserted into a vein in the patient's arm, as was thought. It proved to be only in the cellular tissue, and was then properly inserted. Sixty drachms of blood were injected. The patient recovered completely. A diagram of the whole method of operating is given. A bevel-pointed, silver tube is inserted into a vein of the patient, and this tube is filled with water, and the thumb is kept on the open end. An assistant prepares the blood-donor's arm, and inserts a round-pointed tube in a direction towards the fingers. An india-rubber tube with a ball in the middle and a tap at either end is filled with water and fitted to the two tubes. The taps are turned on, the india-rubber tube compressed on the donor's side of the ball, and the ball squeezed to send the water on into the patient's vein. Next the tube is compressed on the other side of the ball, and the latter filled. The process is repeated as at first. Defibrination is not necessary. ('Lancet,' Aug. 3. 1872, 147.)

Modification of Syme's rhinoplastic operation.—Mr. Stokes operated on a man, æt. 30, a Scotchman, who was suffering from complete destruction of the nasal bones as well as the nasal processes of the superior maxillary bones, and the soft structures covering them. There was a large opening, through which three fingers could be easily introduced into the nasal cavity. Fortunately the soft parts constituting the tip of the nose remained intact, and the tissues around the opening appeared healthy. Mr. Stokes adopted a modification of several procedures. He made two triangular flaps, with their apices above, at the nasal process of the os frontis and their bases below and having freely vivified the edge of the large, oval-shaped opening he transplanted the two triangular flaps towards the middle line so as completely to cover the opening and united them in that situation with fine entomologist pins and twisted glass silk sutures. The bases of the triangular flaps were in like manner united to the upper margin of the lower portion of the nose. In order to fill up the defect at each side of the inner portion of the cheek, where, namely, the flaps had been taken, another plastic operation was performed. The flaps were made of a somewhat quadrilateral form and were taken from the soft parts covering the malar bone. The result was satisfactory. A woodcut of a photograph is given. ('Dub. Journ. Med. Sci.,' Dec. 1872, 442.)

Stokes' rhinoplastic operation.—Mr. Stokes records a case in which he performed this operation. He remarks that it is best adapted for cases where the disease extends across the whole or greater portion of the red border of the lip. Its advantages are simplicity and facility of

performance and slight cicatrices left afterwards. An illustration is given. The disease is removed by a quadrilateral-shaped incision. From the outer (and inferior) angles of the defect, incisions should be made downwards and outwards to the lower border of the inferior maxilla, terminating at about one inch and a quarter from the symphysis. From the apex of the chin two other incisions, united above, should be made, parallel to the first ones, but underneath the chin, and each of them from half to three quarters of an inch in length. The soft parts included within these four incisions should then be dissected off the inferior maxilla as far as the inferior extremities of the two lower incisions (those, namely, beneath the chin) and these latter then permit the soft tissues of the chin to be pushed upwards, so as completely to fill up the defect made by the removal of the morbid growth. ('Dub. Journ. Med. Sci.,' Dec. 1872, 444.)

Treatment of cicatrices from burn.—Dr. Buck records the case of a child affected with extensive cicatrices of the front of the neck, &c., on whom he operated successfully. A broad band extended from the chin to the sternum, approximating them to within two inches of each other. At both lateral edges of the band, the adjacent, continuous, sound skin receded, and formed a deep pocket behind the band itself, so that the fingers pressing from opposite sides were easily made to meet, with the skin only intervening. A photograph is given showing the great width of the band well. The patient being under the influence of ether, the entire cicatricial band was divided into three serrated, irregular flaps, interlocking each other. One of the three was central, with its apex upward at the symphysis menti; the other two were lateral, with their apices downward, and resting on the clavicles. They were formed by two diverging incisions carried from the symphisis downward and outward to either edge of the band at the clavicles. From these terminal points an incision was made along either margin of the band, upward and outward, to the edge of the jaw. The three flaps were then dissected up from the subjacent, loose, connective tissue, from their apices towards their bases. The dissection was carried beyond the limits of the scar. The flaps were adjusted to the raw surfaces. A thick nodule of scar was removed. A long incision was made to remove tension. Strapping was used as well as sutures. The flaps sloughed. The granulations were treated thoroughly with nitrate of silver and caustic potash. As cicatrisation advanced lines of cicatrix formed and were notched. The chin was elevated by means of an apparatus which is described in detail and figured. Two parallel bars were fixed along the back from the pelvis to the top of the neck. A cross piece was fixed opposite the shoulders and bands passed from this under the armpits. A steel ring or collar was fixed to the highest part and passed under the chin. It had a joint at the side. When the child wanted to move the head he was obliged to lift the chin above the collar, thus further stretching the cicatrix. By means of a screw behind, the chin could be elevated or depressed. The patient recovered satisfactorily. A woodcut of his final appearance is given. In the course of some remarks Dr. Buck insists on the value of the removal of the indurated cicatrised parts by sloughing, &c., and

the free detachment of the remainder from the subjacent parts; on the fact that the apparatus was kept on for a very long time (it was taken off at night); the repression of the granulations; and the free division of the new cicatricial tissue forming in bands. Dr. Buck refers to other cases and apparatus. ('Am. Journ. Med. Sciences,' Jan. 1872, 53.)

Treatment of cicatrices.—Mr. Lister advocates division of cicatrices, stretching of the edges of the wound by india-rubber bands and the careful employment of antiseptic dressing. The latter consisting in applying folds and bandages of gauze (antiseptic) with a piece of waterproof material interposed next the skin as a "protective." Underneath the outmost fold also a piece of waterproof material is inserted to make any discharge travel through a quantity of the gauze. The gauze admits air freely, but removes the septic germs. ('Edin. Med. Journ.,' Aug. 1871, 145.)

Ossification of the marrow of bones.—At a meeting of the Academy of Medicine in Paris on January 9th, 1872, M. Demarquay presented a specimen of ossification of the medulla of the humerus. It was taken from a young man, æt. 20, who had had his humerus fractured by a gunshot a year previously. An attempt was made to preserve the the limb, but the wound did not heal; numerous abscesses formed on the chest, and the arm became greatly swollen, and presented, through its whole extent, fistulous openings leading to diseased bone. The patient's health being much impaired, disarticulation of the limb was performed. The humerus was divided longitudinally, and it was then found that the periosteum had formed a layer of new bone covering the whole shaft, but leaving openings through which the dead bone could be reached. The whole of the shaft had undergone necrosis. The medulla had undergone ossification at the ends of the diaphysis, its periphery being transformed into bone, and the central part destroyed.

Scapulo-humeral periarthritis.—Dr. Simon Duplay gives an elaborate description, in the 'Archives Générales de Médecine' for November, 1872, of an affection which is, he says, very common, but has scarcely, if at all, been thoroughly described in surgical works. Jarjavay, however, in a paper on displacement of the tendon of the long head of the biceps, published in the 'Gazette Hebdomadaire,' in 1867, gives a very accurate account of the early stages of the disorder. He says that contusions of the shoulder and sprains of the arm are very often followed by inflammation of the subacromial synovial bursa, producing the following symptoms:—A sensation at the time of the accident as if something were displaced; tumefaction of the shoulder; pain, preventing the movements of the arm, especially abduction; flexion of the forearm on the arm, and rigidity of the biceps muscle; increased pain, with crepitation beneath the acromion when the arm is raised and abducted, and disappearance of the pain and return of the power of movement after rest and the use of a sling, with the application of lotions to the shoulder. This description of Jarjavay is applicable to the acute form, but Dr. Duplay has extended his researches also to the chronic form of the affection. After describing the symptomatology, diagnosis, prognosis, and treatment, and giving several cases, he sums up in the following conclusions:—(1) Direct or indirect injuries of the shoulder are

very frequently followed by inflammation of the tissues surrounding the scapulo-humeral articulation. This periarthritis is more especially localised in the subacromial synovial bursa and the subdeltoid areolar tissue, and gives rise to thickening and induration of the areolar tissue and of the walls of the subacromial bursa, and also to the formation of adhesions and fibrous bands, which impede or entirely prevent the head of the humerus from gliding on the concavity of the acromion and the inner surface of the deltoid. (2) Periarthritis is distinguished from disease of the interior of the shoulder-joint by the absence of deformity, and if there be any swelling, it is only in the acute stage, when it is limited to the summit of the shoulder. The characteristic symptoms of periarthritis are the following:—(*a*) The movements of the shoulder are impeded, sometimes to such an extent that the arm cannot be extended horizontally. In all the movements of the joint the relations of the humerus to the scapula remain unchanged, and the latter bone plays round its clavicular attachment. In some cases these movements are accompanied by crepitation. (*b*) There is pain on moving the arm, not at the level of the articulation, but beneath the acromion, at the attachment of the deltoid to the humerus. Pain is also caused by pressure below the acromion, at the level of the coracoid process. Sometimes, also, there is a sensation of tingling and of numbness along the limb as far as the hand. (*c*) The forearm is sometimes semiflexed, and attempts to extend it produce pain in the fold of the elbow and in the neighbourhood of the coracoid process. (3) Periarthritis of the shoulder must be carefully treated at its commencement, if we would avoid the rigidity to which it gives rise. Gymnastic exercises of the limb, electricity, douches, and shampooing, are the best methods. (4) In cases of chronic periarthritis the only means of procuring a rapid and complete cure is at once to break down the adhesions and the fibrous bands. The use of chloroform is indispensable for this operation, which may require to be repeated if the result be not satisfactory. (5) After the adhesions have broken, the patient must be placed for some time under a course of gymnastic exercises, electricity, douches, &c., until the limb has regained its power of movement.

Periostitis of the temporal bone.—In an interesting clinical lecture on this subject, in relation to a case in the London Hospital, Mr. Hutchinson calls attention to the fact that the bone is not covered on its opposite surfaces by the same periosteal membrane. Necrosis is very common in the long bones, but of the temporal bone it is comparatively rare. We have periostitis of this bone accompanied by considerable suppuration, and yet followed by complete recovery without the death of any portion of bone. This may be due to the copious supply of blood which it obtains. The comparative immunity of the inner surface of the bone from inflammation may possibly be attributed to the absence of continuity between the dura mater and the external periosteum. The treatment resolves itself, mainly, into the possibility or impossibility of opening the abscesses which form in connection with the inflamed periosteum. This can be accomplished over the mastoid process, but not if the abscess point in the meatus or in some part of the pharynx. ('Med. Times and Gaz.,' Nov. 25, 1871, 641.)

Treatment of persistent inflammation.—Mr. John Marshall writes on the employment of solutions of the oleates of mercury and of morphia in the local treatment of "persistent" inflammation. They consist, essentially, of solutions of oxide of mercury in oleic acid, being, in reality, the oleate of mercury dissolved in oleic acid, but to these solutions is added a certain quantity of morphia, which, in its uncombined state, is readily soluble in, and doubtless unites with, the oleic acid. The oxide of mercury precipitated by caustic potash or soda from a solution of the metal in nitric acid (which is a yellow impalpable powder) is, when recently made and well dried, readily soluble in oleic acid, especially when aided by a temperature of about 300° Fahr. The solutions are named according to the amount of oxide they contain. The 5 per cent. is a perfectly clear, pale, yellow liquid. They should not be rubbed on the skin, but merely smeared on. As a rule, from ten to thirty drops are sufficient for one application. This should be repeated twice daily for four or five days, then at night only, then every other day. In a case of chronic inflammation of the knee-joint treated, twenty to thirty drops of the 5 per cent. solution also containing a grain of morphia in the drachm were applied night and morning for about ten days, and then at longer intervals. A piece of linen was kept on the joint, then a layer of cotton wool, and over this a bandage from the foot to above the knee. The patient could walk at the end of a month. The 5 per cent. solution with the addition of an eighth part of ether is useful in sycosis, chloasma, and other forms of tinea. It destroys pediculi and their ova. In congenital syphilis a drop of the 20 per cent. ointment, about the size of a pea or bean, placed in the child's axilla night and morning for five or six days is an effective and cleanly means of treatment. ('Lancet,' May 25, 1872, 709.)

Treatment of epistaxis.—Dr. F. Küchenmeister, of Dresden, proposes to treat epistaxis by an instrument which he calls the "rhineurynter," and which is, in fact, an imitation of the "colpeurynter." It consists of an india-rubber tube about 20 or 24 centimetres long, with a diameter of half or three-fourths of a centimètre, and ending in a bulbous extremity about 1½ centimètre long and from 1 to 1½ centimètre wide. The tube is guided into the nostrils by means of an ordinary sound, and, the latter being withdrawn, air or water is injected so as to distend the bulb, which thus fills the naso-pharyngeal cavity and presses against the walls of the nares. ('Öster. Zeitschr. für prakt. Heilk.,' No. 22, 1871.)

Nasal mucous membrane used in uranoplasty.—M. Lannelongue communicated to the Surgical Society of Paris, in May, 1872, the history of the case of a lad, æt. 17, who had congenital fissure of the hard and soft palate. He had also harelip on the left side, which was remedied by operation. The cleft in the hard palate was a centimètre in breadth, and to its right border was attached the septum narium. This suggested to Lannelongue the idea of transplanting the nasal mucous membrane. He accordingly made two perpendicular incisions in the membrane, before and behind, joined the upper ends by a transverse cut, loosened the flap thus formed, and fastened its free border to the left edge of the fissure after paring the latter. Union followed, and a fortnight after

the operation the membrane retained its original appearance, and continued to secrete mucus, though in diminished quantity.

Removal of foreign bodies from the external ear.—J. Gruber ('Allgemein. Wiener Medizin. Zeitung,' Nos. 42 and 43, 1872) recalls attention to the old, but hitherto much neglected fact that foreign bodies are best removed from the external auditory meatus by syringing, and if they become impacted in consequence of swelling of the canal, they do less harm than the attempts made to remove them. He has lately made experiments for the purpose of ascertaining the effect of astringent solutions in reducing the size of peas, &c., which are often introduced into the ear by children, and he finds that the only agents which produce this result are a solution of sulphate of zinc and diluted lime-water. He therefore advises that, in cases of the introduction of foreign bodies, these fluids should be dropped into the ear. He relates the following case:—A carob bean had been pushed by a schoolfellow into the ear of a boy eleven years old. Attempts were made to remove it, but without effect. When Gruber saw the boy, five weeks afterwards, he had febrile symptoms, and was therefore placed under antiphlogistic treatment. The foreign body lay deep in the ear, and water, when injected, flowed out through the nose, showing that the tympanum was perforated. After the febrile symptoms had abated the meatus was dilated, and solution of zinc dropped in. At the end of about three minutes the bean was removed by injection. Previously to the introduction of the bean the boy had been suffering from purulent discharge from the ear; this, however, ceased some weeks before the foreign body was removed, and after the removal of the latter the membrana tympani was seen to present a cicatrix, but no perforation.

Skin-grafting.—M. Ollier, of Lyons, in a communication to the Académie des Sciences, on March 18, 1872, states that the method which he employs to promote healing of ulcers consists in the transplantation, not of small portions of epidermis, but of pieces of skin 4, 6, or 8 square centimètres in size. These may be taken from the patient himself or from another person, the part having been first rendered insensible by a freezing mixture. In most cases M. Ollier has obtained these from amputated limbs. Any adipose tissue that may be present on the under surface of the flap must be removed before its application. By this process, M. Ollier says, a thick, stable layer of skin is formed, in place of thin, delicate, and unstable cicatrix which follows the operation of epidermic grafting.

Mr. Anderson writes a paper on the theory and practice of epidermic grafting. ('St. Thomas's Hosp. Rep.,' ii, 165.)

Dr. Macleod writes on the subject, and figures a pair of scissors and forceps combined, which he uses. ('Brit. Med. Journ.,' April 1, 1871.)

Dr. David Page makes further observations on the true nature of the so-called skin-grafting. ('Brit. Med. Journ.,' May 27, 1871.)

Unilateral atrophy of the tongue.—Mr. Fairlie Clarke relates the case of a woman, æt. 45, who had a tumour removed from her right breast February 16, 1870. On October 3rd the patient was seized with a deep-seated pain on the right side of the head, of a periodic character, returning each night, between 1 and 2 a.m., and rendering her for some hours

incoherent and unmanageable. There was great turgescence of the vessels of the right side of the neck. On the 4th of December the patient was so much better as to require no further attendance. It was at this time that the atrophy of the right side of the tongue was first noticed, though it was not then so marked as it afterwards became. On March 29th, 1871, the patient was found to be suffering in an aggravated degree, and, in addition, there was an alarming dysphagia, together with paroxysms of suffocative cough, which recurred about three times in the twenty-four hours. She could only put the tongue out very slowly, and seemed unable to do so at all at first. The tongue was crimped and puckered along its whole right side from base to apex, but these appearances were most marked in the anterior two thirds, and an actual loss of substance had taken place, so that this half of the organ seemed small and wasted. The loss of substance was bounded by the median raphé, and the contrast between the *plumpness* of the left side and the shrivelled aspect of the right was very striking. The tongue was soft throughout; there were no hard nodules on it. No alteration was noticed either in the common sensation of the organ or in its special sense of taste. When the tongue was protruded there was no deviation to either side. The paroxysms of dyspnœa became more frequent and more severe, and on the 7th of June, in one of these paroxysms, she died. There was no post-mortem. Two published cases are quoted, one recorded by M. Dupuytren, and the other by Sir James Paget. Mr. Fairlie Clarke remarks that in his case he thinks there was good reason for supposing that the affection depended on the involvement of the right hypoglossal nerve in a secondary cancerous growth, either inside the cranium or at the upper part of the neck. The facts which lead to this conclusion are—the existence of an undoubted cancerous tumour, which was removed sixteen months before death, after it had been growing about a year; the general cachexia; the intense and deep-seated pain on the right side of the head and neck; the fulness and turgescence of the vessels on the right side of the neck, denoting an obstruction to the circulation; the frequent attacks of dyspnœa and dysphagia, which probably depended on pressure on the pneumogastric and glosso-pharyngeal nerves. These symptoms, together with the absence of paralysis of the extremities and the clearness of the intellect, seem to indicate that the disease was not in the brain or medulla oblongata, and make it probable that there must have been an adventitious growth pressing upon the right hypoglossal nerve, and implicating more or less the pneumogastric and glosso-pharyngeal nerves. The different situations in which such a growth might be placed are discussed, and the evidence which exists to show that the condition of the tongue might depend on an affection of the nerve itself is considered. An experiment on a rabbit is detailed. In an appendix, cases more or less similar are alluded to. An illustration of the state of the tongue is given. ('Med.-Chir. Trans.,' lv, 90.)

[Abstracts of various papers on Cancer, Tetanus, Electrolysis, Treatment of Deformities, etc., etc., have been unavoidably omitted.]

REPORT

ON

OPHTHALMIC MEDICINE AND SURGERY.

BY

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THE years 1871 and 1872 have been marked, like those immediately preceding them, rather by writings of a fugitive character, devoted to matters of detail, than by accounts of any researches or facts of striking novelty. The International Congress of Ophthalmology held its fourth quadrennial meeting in London, in the first week of August, 1872, but the report of the meeting has not been published at the time when this summary is passing through the press, and the papers read must be noticed on a subsequent occasion.

In the course of the two years death has taken away five ophthalmologists of eminence. Dr. Heymann, of Dresden, best known in this country by his ingenious aut-ophthalmoscope; Professor Gioppi, of Padua; Professor Frederic Jaeger, of Vienna; Dr. Pamard, of Avignon; and Professor Stoeber, of Strasburg. Of these, the first two have died in the prime of life; the last three were veterans, already resting from their labours.

In England the literature of ophthalmology has been extremely scanty. Messrs. Churchill have published, in their manual series, a second edition of Macnamara's treatise.* Mr. Streatfeild has rewritten the chapter on diseases of the eye for a new edition of Erichsen's 'Science and Art of Surgery;' the 'Ophthalmic Hospital Reports' have appeared irregularly; and various papers have been published in the journals or read before the medical societies.

In America the 'Archives of Ophthalmology and Otology' have been continued, and a second volume has been completed. The 'Transactions of the American Ophthalmological Society' have been issued irregularly.

In Germany Dr. Hirschberg has commenced the publication of an annotated edition of von Graefe's 'Clinical Lectures;† Dr. Schmid

* 'A Manual of the Diseases of the Eye,' by C. Macnamara.

† Prof. A. von Graefe's 'Klinische Vorträge über Augenheilkunde. Herausgegeben, erläutert und mit Zusätzen versehen von Dr. J. Hirschberg,' Berlin, A. Hirschwald.

has issued a treatise on the lymph-follicles of the conjunctiva;* Dr. Salomon has written a tract on the diseases of the lenticular system,† founded on v. Graefe's teaching; Dr. Otto Becker has collected and edited Heinrich Müller's writings on the anatomy and physiology of the eye;‡ Woinow, of Moscow, has published at Vienna a treatise on ophthalmometry;§ and various tracts and inaugural dissertations have appeared. Dr. Nagel has commenced a yearly record of ophthalmology,‖ which is to embrace the scientific work of all countries. Prof. Th. Leber has been added to the editorial staff of the 'Archiv für Ophthalmologie,' and the 'Klinische Monatsblätter' of Prof. Zehender have appeared as usual.

In France Dr. de Wecker has issued a French edition of Jäger's 'Ophthalmoscopic Atlas,' with the original plates, and with a dissertation of his own upon the diseases of the deeper parts of the eye;¶ Galezowski has completed his systematic treatise,** and has commenced, in conjunction with Dr. Piéchaud, the issue of a monthly ophthalmic journal.†† In Holland the usual scientific papers have been added to the annual reports of the Netherlands Ophthalmic Hospital. In Belgium the 'Annales d'Oculistique,' and in Italy the 'Giornale d'Oftalmologia Italiano' have been continued with regularity.

(*a*) *Anatomy and Physiology.*

Ocular tension.—Monnik‡‡ has published the opinions of Donders with regard to the principles of tonometry of the eyes, and the results of his own observations with an improved tonometer. Donders points out that when we determine the ocular tension, either by the finger or by a tonometer, we estimate the force required to make a certain impression upon the tunics of the eye. The tension of the eye depends upon several conditions, and we cannot estimate simply and directly the hydrostatic pressure of the contained fluids. The pressure that we exert upon the eyeball from without diminishes its internal space, and displaces a portion of its contents, for which, the contents being incompressible, room must be found elsewhere. This room is afforded (*a*) by extension of the remaining parts of the ocular tunics, an effect that will vary with their elasticity and with the

* 'Lymphfollikel der Bindehaut des Auges. Histologische Studie, von Dr. Schmid,' Wien, 1871, Braumüller.

† 'Die Krankheiten des Linsensystems, von Dr. Max Salomon,' 1872, Brunswick, Vieweg.

‡ Heinrich Müller's 'Gesammelte und hiaterlassene Schriften zur Anatomie und Physiologie des Auges. Zusammengestellt und herausgegeben von Otto Becker,' Band, i, 1872, Leipsic, Engelmann.

§ 'Ophthalmometrie, von Dr. M. Woinow,' 1872, Wien, Braumüller.

‖ 'Jahresbericht über die Leistungen und Fortschritte im Gebiete der Ophthalmologie,' Erster Jahrgang, 1872, Tübingen, Laup.

¶ 'Traité des Maladies du Fond de l'Œil et Atlas d'Ophthalmoscopie,' par L. de Wecker et E. de Jaeger, Paris, Delahaye.

** 'Traité des Maladies des Yeux,' Paris.

†† 'Journal d'Ophthalmologie de Paris.'

‡‡ 'Tonometers en Tonometrie,' Dissert inaug., Utrecht, 1868; 'Bijbladen, 1ode Verslag, Nederl. Gasth.,' v. Ooglijders, 1869; "Ein neuer Tonometer und sein Gebrauch," 'Arch. f. O.,' xvi, 1, 49.

absolute size of the eyeball, since a larger surface will yield more than a smaller one; (*b*) by an alteration in the shape of the eyeball, which from being spheroidal will become more nearly spherical; (*c*) by the exit of blood and lymph from the vessels of the eye. It is only after estimating the value of these several factors that a sound judgment upon the actual degree of tension can be arrived at. The new instrument of Monnik is so contrived as to measure the force that is required in order to indent the coats of the eyeball to the depth either of one fourth or of one half of a millimètre, and the inventor states that this force is about two grammes greater near the corneal margin than at the equator. In his final observations the tonometer was applied at an intermediate part, 6 mm. from the cornea. The tension of normal eyes was found to differ within rather wide limits, and Monnik defines normal tension as that in which a depression of ¼th of a millimètre was produced by a pressure of between 10 and 15 grammes. He calls the eyes soft that require less than 10 grammes, and those hard that require more than 15. From a small number of observations it would seem that tension naturally increases with advancing life; that there is frequently a small difference between the two eyes of the same person; and that the same healthy eye, tested at different times, may exhibit a difference as great as three grammes. In moderate degrees of myopia the tension was slightly below the normal, in high degrees slightly in excess, in hypermetropic eyes normal. Excess of tension was found in almost all cases of anterior synechia, especially when complicating corneal ulcers or keratitis; in congestive amblyopia, in some cases of cataract, and in glaucoma. Diminished tension was found in all forms of iritis except the sympathetic, in some cases of cataract, and in detachment of the retina. In sympathetic iritis a reduction of tension followed the extirpation of the primarily injured eye. The effect of atropine upon tension was not satisfactorily determined. The instrument used in the researches was made by Verlaan, of Utrecht.

Coccius* practises palpation of the globe by placing the tips of the index fingers, first moistened with lukewarm water, directly upon the sclera, while the patient looks upwards. He believes that he can thus better estimate, not only the degree of tension, but also the thickness of the coats of the eyeball.

Congenital coloboma of the iris.—Dr. Ponti† presented to the Medico-Chirurgical Conference of the University of Parma one of his own children, aged seven years, the subject of congenital fissure of the iris of the left eye, in a direction downwards and a little inwards, as far as the ciliary ligament, where the two margins of the fissure met by convergence. The ciliary processes appeared to be wanting in this region. The eyeball was a little flattened in the direction of the inferior rectus, and the cornea seemed less convex in the segment corresponding with the coloboma. Vision was perfect ($S=\frac{20}{xx}$, No. 1 Sn. read at 1′). There was no photophobia, although it had existed

* 'Bericht über die Heilanstalt fur arme Augenkranke.'

† 'Annales d'Oculistique,' 1872, ii, 19.

during the first years of life. The media and fundus showed nothing abnormal. The author related that, seven months before the birth of this child, his mother assisted at an iridectomy inwards and downwards on the left eye of a little girl. He thought it possible that the impression thus arising might have produced the coloboma. He also cast doubt upon coloboma being occasioned by an arrest of development, and gave reasons for attributing it to a process of intra-uterine inflammation.

The diagnosis of colour blindness.—M. Woinow* brought before the Heidelberg Congress of 1871 a simple and easy method of discovering colour blindness. It rests on the fact that all the tones, including white, that are distinguishable by an eye which is blind for one of the three elementary colours, may be obtained from the other two. Thus, if the eye be affected with anerythropsia, all the colours it can distinguish, including white and grey, may be obtained from violet and green. If it be blind to green, all the colours it can distinguish may be obtained from red and violet; or if to violet, from red and green. The author constructed a top, carrying four superimposed concentric discs, each smaller than the one below it. The largest and lowest is coloured violet and green; the second, violet and red; the third, red and green; and the fourth, black and white, or grey. When the top is rapidly rotating the discs present a grey centre, surrounded by three variously coloured rings. The patient is asked whether any of the three rings seem to him to be grey, like the central disc. If one should present this appearance, the patient is blind as regards the colour absent from that disc.

Retinal pulsation in aortic disease.—Dr. Beckert read, before the Heidelberg Congress of 1871, an account of his investigations on arterial (retinal) pulse in cases of aortic insufficiency. He had observed, in concert with Dr. Sichting, that under such circumstances a spontaneous arterial pulse was visible with the ophthalmoscope in the direct image. At first he thought the observation new, but found afterwards that he had been anticipated by Quincke, who had published two articles upon the subject.‡

Further and careful examination showed that in every case of insufficiency of the aortic valves, not complicated with other valvular disease, the arterial pulse was plainly visible, and the more plainly the more considerable the consecutive hypertrophy of the left ventricle. It was absent when valvular insufficiency was combined with very pronounced anæmia or with fatty degeneration of the heart. The pulse was visible, not only upon the papilla, but over the retinal surface, wherever it was possible to follow the arteries with the ophthalmoscope.

The phenomenon is wholly different in its character from the so-called arterial pulse of glaucoma, in which, on account of the resistance to be overcome, blood only enters the central artery of the retina at the acme of each successive pulse wave. The visible pulse

* 'Annales d'Oculistique,' 1872, i, 112; 'Arch. f. O.,' xvii, 2.
† 'Annales d'Oculistique,' 1872, i, 275.
‡ 'Berl. Klin. Woch.,' 1868, No. 34; 1870, No. 21.

aortic insufficiency presents all the characters that can be recognised at the wrist by touch. It allows the observer to count on the retina the beats of the heart, to see the rhythmical distension and elongation of the artery, to recognise the distinction, during each pulsation, between the turgescence of the artery, its relaxation, and the pause; in other words, it displays to view all the characters of the pulse, its frequency, its force or weakness, its sharpness or softness. By means of the ophthalmoscope the eye can follow on the retina, as on the table of a sphygmograph, all the undulations of the curve described by the arterial wave.

The observation of the phenomena is not equally easy in all cases, or in all parts of the same retina. The distension of the arteries is best seen at a bifurcation, their elongation in those which present curves in the form of an S. During the arterial diastole the curves of the S increase, and return to their former position during the arterial systole. Sometimes the rhythmical and vermicular movements of the vessels communicate to the whole fundus of the eye a strangely animated appearance. It is well known that similar conditions may be observed in the mesentery of a frog. When a drop of water is suffered to fall on the exposed intestine, the muscular coat, by its contraction, increases the resistance offered to the arteries on their passage from the mesentery to the intestine, and their vermicular movements assume an almost spasmodic character.

Dr. Becker has observed that, in a certain distribution of vessels on the papilla, spontaneous arterial pulsation may be found even in the normal eyes of healthy persons. He has also observed a case of detachment of the retina, in which the arteries, on their passage over the displaced portion, performed very manifest vermicular movements. But his most interesting observation was in a case of aneurism of the transverse aorta, in which the phenomena of visible pulsation were apparent in the left eye and entirely absent from the right. This condition could only be explained by reference to the seat of the aneurism, which must have been so situated as to involve the origins of the left carotid and subclavian, leaving the innominate free. The conclusion to be drawn from this is that, in certain cases, the appearance of a retinal arterial pulse might assist in determining the precise seat of an aneurism of the transverse aorta.

In the discussion which followed, Dr. Weber, in reply to Dr. de Wecker, gave an account of the retinal circulation at and immediately after dissolution. Dr. Schmidt, who had taken part in Quincke's observations, confirmed the general accuracy of Dr. Becker's statements, adding, however, that the force of the pulsations varied from time to time with the degree of cardiac excitement. Dr. Becker rejoined that he was so well aware of this that he was in the habit of administering a stimulant to render the pulse more visible. He was entirely in accord with Quincke except on two points. That observer said that the pulse might be manifest at certain moments and quite invisible at others. He also claimed to have seen, besides the arterial pulse, a rhythmical coloration and pallor of the disc, which he attributed to a capillary pulse. In spite of the most careful and conscientious exami-

nations, he had not been able to verify either of these statements. Dr. Schmidt observed that he had witnessed both phenomena. Dr. Becker did not doubt him, but regretted that he could not himself say the same thing.

Refraction.—Dr. F. Erismann, of St. Petersburgh, publishes* a very full and detailed account of his investigation of the state of refraction of the eyes of 4358 scholars or students of both sexes, and of ages ranging from 10 to 24 years.

Cohn† brought before the Heidelberg Congress the results of his examination of the dioptric state of the eyes of 240 village school children, after the instillation of atropine. He commenced by some observations on the paper of M. Erismann mentioned above, and stated his intention of analysing this paper fully on a future occasion. At the time he would only refer to some expressions in it which he thought a little too bold, and especially to this, that the use of concave glasses was hurtful to the sight of young myopes. Nothing could be more difficult than to determine, *à priori*, whether, given a certain degree of myopia, such or such a glass would be hurtful or not. In order to answer such a question it would be necessary to have a number of persons all with the same degree of myopia, all occupied in the same manner and during the same hours, and to give glasses to half of them and not to the others. Under such conditions, and after several months of observation, it would be possible to determine the influence of spectacles upon myopic vision.

The chief interest that Dr. Cohn found in the paper of M. Erismann was the proof it afforded of the great frequency of facultative hypermetropia. Among the children attending school at St. Petersburgh 44 per cent. were manifestly hypermetropic, and it might have been found that many others were really so if atropine had been employed. The author wished to fill this void in all previous researches; and he had been enabled, by favorable circumstances, to apply atropine to the eyes of 240 children at the school of Schreiberhau. He selected 142 boys and 98 girls, all who were old enough for his purpose, and first examined them for facultative hypermetropia without atropine, and found Hm. in 77 per cent. After atropinization he found H in 99 per cent., and in the following degrees:

$H = \frac{1}{60}$ in 26 per cent.	$H = \frac{1}{30}$ in 6 per cent.
$\frac{1}{80}$ in 23 „	$\frac{1}{24}$ in 4 „
$\frac{1}{50}$ in 16 „	$\frac{1}{20}$ in 2 „
$\frac{1}{40}$ in 12 „	$\frac{1}{10}$ in 1 „
$\frac{1}{36}$ in 9 „	

so that the extremes were $\frac{1}{80}$ and $\frac{1}{10}$, and the most frequent grade

* 'Archiv. f. Ophth.,' xvii, 1, 1—79.
† 'Annales d'Oculistique,' 1872, i, 89.

was $\frac{1}{60}$. He concludes that the normal eye among children from 6 to 13 is not emmetropic, but presents a slight degree of hypermetropia. Cohn's paper is published in full in the 'Archiv für Ophthalmologie;'* and the same journal contains also (p. 292) his promised review of Erismann. The details are such that they scarcely admit of condensation. Maklakoff† has examined the refraction of the eyes of scholars twice, after an interval of a year, and his results generally agree with those of Erismann. He found that both the number per cent. of myopes and the mean grade of the myopia increased in the more advanced classes. Among 759 scholars, 284 were of the junior classes. Of these—

208 (73¼ per cent. were emmetropic.
69 (24¼ „) „ myopic.
7 (2½ „) „ hypermetropic.

307 were in middle classes. Of these—

189 (61 per cent.) were emmetropic.
111 (36 „) „ myopic.
7 (2½ „) „ hypermetropic.

168 were in advanced classes. Of these—

86 (51¼ per cent.) were emmetropic.
73 (43½ „) „ myopic.
9 (5⅓ „) „ hypermetropic.

He also found myopia more common among girls than among boys, a circumstance which he attributes to such occupations as sewing, which require the close application of the eyes.

Test types.—Burchardt has published‡ a set of test objects, which he calls international, originally suggested by the test dots given in the 'English Army Medical Report for 1860.' His introduction is translated, and specimens of the tests are given, in the 'Annales d'Oculistique.'§ He enumerates the well-known disadvantages of types as tests of the acuity of vision, and proposes to substitute for them groups of black dots or circles, variously arranged and of graduated sizes. The intervals between the dots are equal to their diameters, and vision is tested by the distance at which the dots of a given group can be seen and counted as distinct objects. For astigmatism he has black circles intersected by white lines in several directions, corresponding to the lines of Dr. Pray's test types. He professes to be able by these tests to determine the state of refraction in each meridian, or in the eye as a whole, without the aid of lenses. It is worthy of remark that the principle of using dots instead of letters is not new, but was suggested by Dr. Giraud-Teulon to the Ophthalmological Congress of 1862. The author makes no reference to this circumstance.

(*b*) *Surgery.*

Cataract extraction.—Dr. Mazzei, of Florence, in a letter addressed

* xvii. 2.
†
‡
§ .

to Dr. Charles Delstanche,* enters at length into his method of cataract extraction, for which he claims a large proportion of success. He dispenses with a blepharostat, and never administers an anæsthetic. He does not use the upper section except for prominent eyes, and prefers the lower wherever the orbital fat is absorbed, or the eye, from any cause, deeply seated. He entrusts the upper lid to the care of an assistant, who is told not to elevate it too much, and himself steadies the globe with two fingers of the right or left hand, according to the side operated upon. He then introduces a knife, of the general model of that of Graefe, but twenty-four millimètres long instead of thirty, and three broad instead of two and a half, at the junction of the lower with the middle third of the outer corneal margin, and carries it into the anterior chamber directed towards the pupil, or at an angle of 40° with the lower horizontal tangent of the cornea. When the widest part of the blade has fairly entered the chamber he changes the direction of the point in such a manner as to make a counter-puncture opposite the puncture, the cutting edge being turned directly downwards. The counter-puncture being fully made, the cutting edge is turned forward till the flat of the blade makes an angle of 45° or 50° with the iris, and then the corneal section is completed by a gentle sawing movement. The capsule is next lacerated, and an attempt made to extract the lens by simple pressure and counter-pressure. If this should not succeed, or if the iris should protrude before the advancing lens, an iridectomy is performed, and the necessary pressure again employed. The external incision may be enlarged if necessary. Six hours after the operation the writer drops in solution of atropine, and repeats the application every twelve hours, the lightly compressive bandage being changed each time. After three days the bandage is laid aside, but the atropine is continued for twelve days longer. The writer claims for his method the great simplicity of the operation, the almost constant preservation of the integrity of the iris, and a smaller degree of pain and distress to the patients, on account of the non-employment of blepharostat or fixation forceps. No statistics of the method are given. Dr. Martin, *chef de clinique* to Dr. de Wecker, publishes† a statistical report of the operations performed at the clinique during the second half of 1871. Among these were ninety-five for cataract, of which eighty-six were for spontaneous, five for traumatic, and four for congenital cases. The spontaneous and the traumatic cases were all operated upon after the method of von Graefe, with modifications as regards the section of the sclerotic and as regards the manner of opening the capsule. The section is based upon the following rule:—*The puncture and counter-puncture are made in the sclerotic tissue, a millimètre beyond the corneal boundary, upon a horizontal line two millimètres below the upper corneal margin. The knife is made to cut its way out at the level of the superior corneal margin.* In this way a flap is obtained, the summit of which corresponds exactly to that of the cornea, while its base, situated two millimètres lower, measures the whole width of the cornea at that level, with the addition

* 'Annales d'Oculistique,' 1871, ii, 202.
† Ibid., 1872, i, 157.

of two millimètres (one on each side) from the sclerotic. If the cornea be of twelve millimètres horizontal diameter, the section thus made will be of eleven or eleven and a half millimètres, while that of von Graefe never exceeded ten or ten and a half.

This enlargement of the section is not necessarily attended by a large excision of the iris. A large coloboma may be avoided by not drawing out too much iris prior to excision; and, when the excision is made, it is always possible, if the iris should tend to lock itself into the angles of the wound, to replace the extremities of the sphincter by slight movements over the cornea with the convexity of the caoutchouc spoon. It is an important point in De Wecker's section that the same rule suffices for all cases and persons, and, unlike Graefe's, requires no modification for very large or very hard lenses, or for eyes of small corneal diameter.

The division of the capsule is effected by a forceps resembling iris forceps, but furnished with a screw to regulate the extent of separation of the blades, and with a point on each blade to serve as a cystitome. The forceps being introduced closed and horizontal, until it reaches the inferior margin of the pupil, is then turned into a vertical position, so that its points perforate the capsule. The blades are then allowed to expand, so that the two points incise the capsule horizontally at the level of the pupillary margin. Still expanded, they are drawn towards the section, making two parallel incisions in a vertical direction. When nearly at the margin of the lens the blades are closed, the points making the second horizontal incision, and thus cutting out a square portion of capsule, corresponding to rather more than the pupillary area. As the blades are closed this portion is seized between the forceps teeth, and is withdrawn altogether from the eye. The forceps cystitome should on no account be introduced until the cut margins of the iris are restored to their proper position. After the operation both eyes are covered by circular pieces of fine linen, over which are pads of unglazed wadding, so placed as to fill all the space between the orbital margin, the bridge of the nose, and the prominence of the cheeks. These pads are retained by a binocular flannel bandage, which exerts slight pressure over the eyes and renders the lids immovable. On the evening of the operation a dose of chloral hydrate is administered, and on the following morning, if the pupil is sufficiently dilated and free from cortex, no atropine is used. It is only employed when the aqueous is a little turbid, when cortical masses remain, or when the iris is threatened with inflammation. The foregoing observations are followed by a table giving full details of each case and of the results obtained.

Extraction without opening the capsule.—Dr. Hermann Pagenstecher* gives the results of the more recent experiments of his brother, Dr. Alexander Pagenstecher, in this method of operating, which, during the last few years, he has applied to 140 cases. Careful observation has led to the conclusion that the method is specially applicable to certain groups of cataracts, while others are more successfully removed by opening the capsule. The delicacy of the latter in certain cases, and its intimate union with the zonula, contra-indicate the general adoption

* 'Annales d'Oculistique,' 1871, ii, 126.

of the proceeding. On the other hand, it seems to be especially advantageous when the resistance of the capsule is greater than that of the zonula. In the latter category may be placed nearly all senile cataracts, whether they are regressive and hard, or soft, as well as those in which, after the slow development of opacity, certain portions of the cortex remain permanently transparent, and never attain maturity. Such are, in general, of small dimensions, and the attachment of the capsule to the zonula offers but little resistance. Most frequently the cortical layers are in a regressive condition, and the cataract is consequently somewhat flattened. A third group well suited for the proceeding comprises the cataracts which supervene upon irido-choroiditis or iritis, and which coexist with circular posterior synechiæ. In such it is, of course, necessary to detach the adhesions, and this may be done with a small blunt silver hook. The fourth group comprises the cataracts that accompany iridodonesis, a state which depends either upon regression of the lens or upon diminution in the bulk of the vitreous body. The method is especially to be recommended for the cases comprised in the last two classes, in which there is a tendency to inflammation, and in which it is very important to protect the iris from débris of cortex and of capsule. There is a last and rare indication in those cases in which, prior to laceration of the capsule, there is escape of vitreous humour. On account of these it is desirable, even when intending to open the capsule, to be always ready to employ the scoop.

Besides arriving at these indications, MM. Pagenstecher have much modified their original method of operating. They now make a linear incision upwards, instead of a flap, and a large iridectomy. In a few cases, as soon as this is done, and the eyeball well fixed and turned downwards, a slight pressure on the lower border of the cornea will cause the lens, enclosed in its capsule, to present itself at the incision. Generally, however, it is necessary to employ a scoop, specially constructed for the purpose by Messrs. Weiss and Sons. The scoop is carefully carried behind the equator of the lens, and made to glide over the posterior capsule until it reaches the equator on the opposite side. To facilitate this manœuvre it is necessary to make slight pressure with the fixation forceps against the lower border of the lens, and thus to push the opposite margin upwards. After a slight rotation, produced by change in the direction of the scoop, such that its handle passes from the centre towards the inner angle of the wound, the lens is drawn upwards, the handle of the scoop being at the same time depressed towards the orbital margin. Thus there is produced a slight pressure of the lens against the cornea, which forbids the former to slip out of the concavity of the scoop. Its exit is at the same time promoted by a slight pressure on the lower part of the cornea by a caoutchouc curette, which is made to follow the advancing lens from below upwards.

Anæsthesia from chloroform, which was always employed when the flap section was made, is now only practised at the especial request of the patient. Experience has shown that extraction with the capsule may be performed as easily through the linear as through the flap i-

cision. The author also finds that loss of vitreous occurs both less frequently and to a less extent than before.

The subsequent treatment is the same as after other forms of operation. The advantages claimed by the author are—

The extraction of the lens within its capsule removes all predisposition to iritis. In 200 cases operated upon there has not been one of primitive iritis.

The method excluded all secondary operations. The visual acuity is greater after this operation than after any other. In 12 per cent. of the cases S = 1.

Notwithstanding these advantages, it is not attended by a larger proportion of lost eyes than ordinary linear extraction.

The defects consist in the difficulty of execution, and in the difficulty in certain cases of arriving at an exact diagnosis. Loss of vitreous occurs pretty frequently, but has never been found to interfere with the union of the section.

It is necessary to observe that after these operations it is comparatively frequent for the anterior portion of the vitreous body to become turbid. Without considering whether the same thing does not occur in other methods, it need only be said that such turbidity completely disappears after a while. It most usually appears after loss of vitreous, but seems to bear no relation to the quantity that may escape.

Astigmatism after cataract operations.—Woinow* has been engaged with Reuss in the study of astigmatism in aphakial eyes. He has arrived at the conclusion that the cylindrical glasses employed for ordinary astigmatism, and based upon ophthalmometric data concerning the curvatures of the cornea, will not always neutralise aphakial astigmatism, and that other glasses are to be preferred, of different forms and with their axes differently directed. Hence he believes that aphakial astigmatism is not due to the cornea, but that it is seated in, and due to the curvatures of, the posterior pole of the eyeball. He finds also that many aphakial astigmatics require a different cylinder and a different direction of the axis for vision of near objects, and he explains this by the supposition that a certain rotation of the globes takes place during convergence.†

Glaucoma.—Prof. Quaglino‡ publishes an account of some experiments intended to determine what is the value of iridectomy in the treatment of glaucoma, and leans to the conclusion that the incision in the sclerotic is the essential element in the operation. He has practised sclerotomy upon several eyes already lost from glaucoma, and has found a permanent diminution of tension and a clearing of the media as the result. Since then he has used sclerotomy also in progressive cases, and has been well satisfied with it. He operates with a lance

* 'Prot. de la Soc. Phys. Méd. de Moscou,' 1871.

† This seems subtle; but [illegible] ordinary cause of astigmatism after cataract operations is the alterati[illegible] one meridian of the cornea, due to the incision and th[illegible]m thus produced not uncommonly follows s[illegible]

‡ 'Annali di

knife, as if for iridectomy, and withdraws the blade very gently, pressing upon the iris as he does so. If prolapsus should still take place he waits until the protruding portion is distended by the resecretion of aqueous humour, and then punctures it in the direction of the radial fibres. After this the prolapsus may generally be readily replaced. Dr. de Wecker, at the Heidelberg Congress of 1871,* referred to Quaglino's results, and stated that he had himself made trial of sclerotomy in a somewhat different manner. He introduces a Graefe's cataract knife, by puncture and counter-puncture, as if to make a flap two millimètres in height, the point passing through the sclerotic very near the corneal margin. He then divides the sclerotic for two thirds of the distance between the punctures, leaving the central third undivided, and retains the knife in the chamber until the aqueous has escaped, when it is slowly withdrawn. In this way he avoids prolapse of the iris. His cases seemed to him to establish the value of sclerotomy in reducing tension, and to show that a *cicatrix of filtration* was the condition essential to a cure.

Ulcus serpens corneæ.—Pagenstecher† strongly supports Saemisch's treatment of creeping ulcer of the cornea. The treatment previously employed at Wiesbaden consisted of atropine instillations, with warm poultices and compression, and it often yielded good results. But complete or nearly complete loss of vision was sufficiently common to render a trial of Saemisch's method desirable. The results were—

1. The ulcerative process was restrained within its existing limits, and thus the size of the eventual leucoma reduced to a minimum.

2. The base of the ulcer became clean and less turbid, and the surrounding infiltration wholly disappeared in the course of a few days.

3. The pus or turbid matters in the anterior chamber were in great part evacuated, and the absorption of the remainder much promoted. The risk of occlusion of the pupil by the organization of false membrane was thus greatly diminished.

4. The tendency to iritis rapidly diminishes, and complete dilatation of the pupil is soon produced.

5. Existing ciliary neuralgia is commonly completely relieved, either immediately or after the lapse of a few hours.

The precepts laid down by Saemisch were rigorously followed in the making of the incision. The after-treatment consisted in the application of a moist compress, the instillation of atropine, the application of a pressure bandage at night, and the frequent reopening of the incision. This last, however, was not continued for so long a time as by Saemisch, but only for from five to eight days.

Corelysis.—Dr. de Wecker‡ entirely condemns operations for detaching posterior synechiæ, either by corelysis or by Passavant's method. He thinks that all such operations are usually followed by anterior synechiæ, the peripheral part of the iris becoming united to the corneal wound. The way in which this wound is irritated by passing hook or forceps through it, and the necessary dilatation of t'

* 'Annales d'Oculistique,' 1872, i, 87.

† 'Klinische Monatsblätter für Augenheilkunde.'

‡ 'Annales d'Oculistique,' 1872, i, 70.

pupil afterwards, combine to render such union probable; and the anterior adhesions are as perilous to the eye, if not more so, as those which they supersede. Dr. de Wecker relates the case of a gentleman who had a single, very fine band of anterior adhesion in his left eye, passing from the inner and lower portion of the pupillary margin to the small circumscribed scar of a nearly central corneal ulcer. Several ophthalmic surgeons attributed frequent attacks of peri-orbital pain to the presence of this adhesion. Nothing seemed more easy than to detach it, and the attempt was made, without success, first by Prof. v. Hasner, then by Prof. Knapp, and, lastly, by Dr. de Wecker himself. Dr. de Wecker made a small incision at the margin of the cornea, allowed the aqueous to escape slowly, and seized the iris near the adhesion with forceps. He found, however, that he tore the tissue of the iris instead of breaking the adhesion, and desisted after three attempts. Every operation was followed by union of the iris to the corneal wound, so that the patient gained three fresh synechiæ without losing the old one, and without losing the pains for which he had sought advice. Dr. de Wecker recommends, in all such cases, the excision of the portion of iris that is adherent.

Suture of the eyelids.—Verneuil* related to the Société de Chirurgie de Paris some cases in which he had pared the edges of the eyelids and united them by suture, in order to prevent ectropion after the extirpation of an epithelioma of the lower lid, and after other injuries likely to be followed by a contracted cicatrix, and also for the cure of ectropion actually established by such contraction. In one case he maintained the union of the margins of the lids for fourteen months. The results in all his cases were very encouraging, and he advocates the employment of his method in preference to plastic operations, which are usually only imperfectly successful.†

Burow‡ confirms Passavant's account of the excellent qualities of the so-called marine grass (obtained in China from the spinning organ of the silkworm) for sutures. The threads produce no suppuration, even if they are suffered to remain for weeks, and are especially adapted for plastic operations about the eyelids. In the same paper he refers to his use of threads soaked in collodion for twisted sutures. As soon as the collodion is dry the pins may be removed. He uses English sewing needles with broad points (glovers' needles ?) and floss silk.

Warlomont§ mentions a method suggested to him by the elder Desmarres for removing suture pins without dragging upon the cicatrix. The operator casts a loop of thread over the head of the pin to be withdrawn, and steadies the soft parts by traction upon this loop with the left hand, while the pin is withdrawn by the forceps held in the right.

Gunshot wounds.—A contribution to ophthalmic surgery of entirely

* 'Gaz. Hebd.,' 1871, 473.

† Uni[illegible] been employed in this country by Mr. Bowman, by the writ[illegible] of healing extensive wounds by skin grafting [illegible]ssary.—R. B. C.

[illegible]lin. Wochenschr.,' 1871, 155.

unprecedented and most important character has been made by Dr. Hermann Cohn, of Breslau, who has recorded* his experience of the cases of injury to the eyes treated at the Lazareths of Forbach, Heinitz, and Neunkirchen, during and after the Franco-German war, and his paper is so novel and so important that it deserves a full notice. He commences by stating that the literature of gunshot wounds of the eye is extremely scanty, probably on account of the attention of military surgeons having been directed almost exclusively to the wounds of vital parts; that even the statistical records of injuries to the eye are very imperfect, and that military ophthalmic surgery can hardly be said to exist, although the value of the organs implicated renders this branch of the art worthy of all attention. Estimating the superficial surface of the body at 15 square feet, and that of the eyes at 4 square inches, we might expect one injury to an eye in every 500 wounds. Demme, in the Austro-Italian war of 1859, saw, in all, 55 cases of shot wound of the eyes, among which 19 produced blindness of both. Stromeyer, among 714 invalids from the Schleswig-Holstein campaign, found loss of eyes in 13 cases, but has not recorded in how many of these both were lost. Williamson states that among the wounded from the last Indian campaigns there were 11 cases of loss of one eye, and a single case of loss of both. From the Crimean war there were 42 cases of destruction of a single eye, and 2 cases of loss of both. In the Austrian war of 1866 Niemetschek saw 9 and Mooren 4 cases of shot wounds of the eyes, and beyond these there are, within Dr. Cohn's knowledge, no statistics upon the subject. No conclusion can be drawn from the number of soldiers invalided as blind, since the lists would exclude all the cases in which injury to the eye had been followed by partial or complete recovery. Even in the Franco-German war it was impossible to arrive at the facts with any certainty, since in a large number of lists of wounded the nature of the injury was not stated at all, and in others it is probable that eyes were involved in many cases entered as injury to the face, head, or brain. The only statistical guidance of any value is that furnished by Dr. Fischer,† who has based a comparative estimate of the relative frequency of wounds of different parts of the body upon 109,698 cases recorded from the annals of modern warfare. His table is entitled to weight on account of the large numbers on which it is based, and he gives 7·4 as the average percentage of wounds of the brain and head, and 3·3 as the average percentage of wounds of the face. There are, therefore, 10·7 per cent. of injuries in which one or both eyes are liable to be implicated. If we assume that they will be actually implicated in 10 per cent. of such injuries, an estimate that is probably not much short of the truth, then the 100,000 wounded of the Franco-German war would furnish 1000 cases of eye injury. The care of the wounded was divided among at least 400 German, French, and foreign surgeons, and, especially at the beginning of the war, the cases of injury to the eye were scattered among the several military hospitals, along with all other cases that would bear removal, instead of being sent to the numerous ophthalmic hospitals of Germany. It

* Contribution to Fischer's 'Kriegschirurgische Erfahrungen,' Erlangen, 1872.

† 'Ueber Kriegschirurgie,' Erlangen, 1868.

follows that scarcely any single surgeon enjoyed opportunities of observing many cases of injury to the eye, and hence Dr. Cohn has felt himself bound to make public the histories and results of 31 such cases that came under his own treatment. While on duty at the railway station at Saarbrucken, where hundreds of wounded passed daily, it was his custom to select the cases of injury to the eyes for treatment in his hospital at Heinitz; and his colleagues, Drs. Fischer, Waldeyer, Spiegelberg, Finne, Fränkel, and Busch, selected cases for him in the same manner at Forbach, Neunkirchen, and Ottweiler. In this way 14 cases were obtained, and the remaining 17 were seen for the first time after the close of the war, some at his own eye hospital at Breslau, others at a barrack hospital in Berlin. He treated 8 cases at Heinitz, 4 at Forbach, 1 at Saarbrucken, 1 at Neunkirchen, 6 at Berlin, and 7 at Breslau. Among the 31 shot wounds there were 2 of the brain, 16 of the eye only, 9 of the face, and 4 of the cranium. Among the 16 wounds of the eye the eyeball was ruptured in 8 cases and grazed in 2. In 5 the lids were wounded by fragments of shell, and in 1 a fragment had penetrated the ciliary body. Of the 9 wounds of the face 5 implicated the superior maxilla and 4 the zygoma, and of the 4 wounds of the cranium 1 was of the temporal and 3 were of the frontal bone. The right eye was wounded in 15 cases, the left in 14. In one case double blindness and in another double nystagmus were produced by injury to the brain.

In the 31 cases the following 70 conditions were observed. Dr. Cohn has stated them, some in German, some in Latin, and some in phraseology hybrid between the two languages, so that his original words are quoted when his meaning does not seem to be absolutely clear:

Total loss of the eye (*Totaler Defect des Auges*)	2
Wasting of the eyeball	3
Extensive wound of the eyeball (*Vulnus perfectum bulbi*)	4
Foreign body in eyeball	1
Opacity of cornea	1
Hæmorrhage into anterior chamber	2
Iritis	3
Partial loss of iris (*Defectus iridis partialis*)	1
Iridodyalysis	2
Traumatic mydriasis	5
Opacity of anterior capsule	2
Hæmorrhage or opacity in vitreous body	5
Rupture of choroid	2
Hæmorrhage in choroid	1
Contraction of field of vision without visible change	1
Cicatrix in retina	1
Chorio-retinitis with exudation	1
Hæmorrhage at yellow spot	1
Disease at yellow spot	1
Detachment of retina	4
Atrophy of optic nerve	2
Complete amaurosis	2
Inflammation of optic nerve	1
Amblyopia without visible change	4
Sympathetic affection without visible change	3
Weakness of internal recti	1

Weakness of external recti	1
Monocular weakness of accommodation	1
Nystagmus	1
Sympathetic blepharo-spasm	1
Ptosis	4
Lagophthalmus	1
Cicatrix of lid	2
Foreign body in lid	2
Pterygium	1

In a case of wound inflicted by a waggon-wheel passing over the eye there was laceration of the upper lid, followed by defective union; and a case of bayonet wound of the orbit was followed by paralysis of the rectus internus, complete ptosis, and pterygium.

The operations performed in the 31 cases were enucleation of the eyeball in 5, and in 3 the excision of splinters of shell that had penetrated the lids. The following cases are among those given in detail:

Two cases of injury to the brain.

1.—Juschkat, æt. 27, was injured in the brain by a chassepot ball before Metz, on the 14th August, 1870, and was struck down stone blind, but without loss of consciousness. The wound of entrance was situated an inch and a half above and behind the concha of the right ear, in a line with a prolongation of the palpebral fissure, and therefore in the lower and posterior portion of the right parietal bone. When the patient reached Forbach, on the 17th of August, a portion of brain the size of a walnut had escaped from the wound, and was adhering to the shirt collar. There was no wound of exit, and the ball was found lying about 2″ behind and 1½″ below the wound of entrance, a little to the right of the occipital eminence, from which position it was immediately removed by Prof. Fischer. Perception of light returned the same evening, and on the following day the patient could discern the (white?) clothing of the nursing sister who had charge of him. A small quantity of brain tissue mixed with pus escaped daily from the wound, which was only gently syringed. The patient had perfect freedom of movement, and his taste, smell, and hearing were normal. There was no paralysis of either extremity. Dr. Cohn saw the case for the first time on the 22nd of August, eight days after the injury. The eyes were then, as they had been from the beginning, quite normal in external appearance. In the right eye the pupil measured 2½‴, and promptly contracted to 1½‴ under lateral illumination or direct lamplight. When looking at the illuminated face of the observer it discerned movements of the hand outwards, upwards and outwards, and downwards and outwards, but in no other parts of the field. Colour perception was lost, but the power of distinguishing whether large objects were bright or dark remained, and, although movements of the hand were seen, the fingers could not be counted. The ophthalmoscope showed perfectly clear media, the retina nowhere detached. The optic nerve was much swollen, its margins obscured, its surface exhibiting a radiating striation in the course of the fibres, the veins distended and winding, arteries very small, and a number of fine vessels were visible, such are never seen in the healthy state. The whole surface of the disc

very red, with a greyish tone. Retina healthy. In extreme abduction or adduction of the eye there were slight pulsatile movements of the globe. Tension seemingly normal. Left eye:—Pupil 3‴ in diameter, contracting very little at the close approach of a flame. No perception of light in any direction. Aspect of nerve the same as in the right eye. The patient slept and felt well, and answered intelligently all questions put to him. All functions were naturally discharged. Pulse full, 50. Dr. Cohn gave a doubtful prognosis, and advised two leeches to be applied to the inner angle of each orbit. The local circumstances precluded treatment in a dark room, and when Dr. Cohn next visited Forbach, on the 25th of September, the patient had been sent away. The notes in the journal were:—"August 26, abscess in the neighbourhood of wound and removal of splinters of bone after incision. Sept. 4, sudden acute headache and a rigor. Sept. 14, vision much improved, wound healing. Discharged."

Dr. Cohn remarks that this case presents many features of great interest. It is another illustration of the well-established fact that large quantities of brain substance may be lost without disorder of the intelligence. Secondly, it shows that even total traumatic amaurosis may terminate in recovery. Thirdly, that sudden increase of pressure on the brain may produce double *stauungspapilla*, with sudden loss of sight. That the blindness was not the result of concussion of the retina seems to be proved by the ophthalmoscopic examination, since such concussion is never attended by visible changes. It must be admitted that in gunshot wounds of the brain we never have symptoms of pure compression, those of concussion and contusion being always added. But in this case everything shows the predominance of compression; the slow full pulse on the eighth day, and the circumstance that perception of light was restored to the right eye on the eighth day, immediately after the projectile was removed. It is well known that V. Gräfe, in 1866, sought to explain the occurrence of stauungspapilla in intracranial tumours, by obstruction to the flow of blood through the cavernous sinus. He believed that the passive congestion of the retinal vein thus occasioned was multiplied by the constriction of the sclerotic foramen. Sesemann, however, in 1869, proved by careful injections that the retinal vein always communicates with both the superior and the inferior ophthalmic, and that by constant anastomoses at the inner angle of the orbit the blood from these veins can always find outlet by the facial; so that increased intracranial pressure cannot affect the ocular circulation in the manner supposed. In the same year it was shown by Schwalbe that the space between the two sheaths of the optic nerve is continuous with the arachnoid space, and Schmidt, who repeated Schwalbe's experiments, found that by injecting the arachnoid cavity he could distend the space between the nerve sheaths quite up to the lamina cribrosa. Hence, he correctly inferred that increased intracranial pressure would force the arachnoid fluid between the nerve-sheaths, and produce swelling and compression at the lamina cribrosa, so as to impede both the circulation of blood and the conduction of nervous impressions, and to produce the changes known as stauungspapilla. Leber took the next step, for, in the autopsy of a patient who

had been the subject of stauungspapilla, he found considerable thickening and an œdematous condition of the inner sheath, and of the lax cellular tissue separating it from the outer. This tissue was "much hypertrophied, and in most places increased almost to be an intermediate layer." The case now recorded seems powerfully to support Schmidt's view, since in no other way could the sudden occurrence of so great a degree of stauungspapilla be explained. The intracranial pressure must have been increased by the presence of the projectile, and the arachnoid fluid forced between the nerve-sheaths and against the lamina in such a way that the circulation and the nerve conduction were both alike arrested.

It may be urged against this view that, as the ophthalmoscopic examination was not made until the eighth day, there is no evidence as to the time at which the changes in the disc occurred. But Dr. Cohn contends that it would be far-fetched to assume a descending neuritis, in view of the instantaneous blindness, and refers again to the slow pulse as an evidence of pressure. It may also be objected he says, that a stauungspapilla is not a sufficient explanation of total blindness, since many cases have been observed in which this condition has coexisted with almost normal vision. He points out, however, that there would be a vast difference between the sudden traumatic compression and even the same degree, if more gradually produced. He refers also to another possible objection, namely, that on Schmidt's hypothesis every case of compression of the brain would be attended with stauungspapilla, which he admits is not the case. He suggests the possibility that something may depend upon the part of the brain from which the increased pressure proceeds, and points out the need for careful ophthalmoscopic examination in all perforating wounds of the brain. At present he is aware of only one recorded case at all similar to the foregoing,* and this was examined very superficially.

2. The second case of brain injury befell Jaschke, æt. 23, who received a shot in the head before Paris, on the 20th of September. He fell, remained unconscious for half an hour, and on recovery found his left arm and leg paralysed, and an acute pain in the left side of the head. He was removed to the Gonesse Lazareth, and knew then where he was. He was wearing his helmet when wounded, and the ball passed through the right flap of the helmet and split against the skull. Half passed out through the back part of the right half of the helmet, the other half lodged in the brain, whence it was removed, three months later, by Prof. König, at Berlin. Dr. Cohn saw the case for the first time on the 11th of April. There was then a cicatrix over the right parietal bone, not sensitive on pressure, measuring $1\frac{1}{2}''$ in length and $\frac{1}{4}'$ in breadth and depth. The patient had complained from the day of the injury of a dazzling before the right eye, there being no dazzling of the left, and both being of normal aspect. After reading for half an hour the dazzling of the right eye became excessive, and was attended by lacrymation. If he abstained from reading he had no inconvenience, it being only produced by exercise of the accommodation. The left

* Demme, 'Spezielle Chirurgie, der Schusswunden.' Abth. 2, p. 7.

arm and leg were still completely paralysed, the patient using a crutch. The pupils were of equal size, and acted equally and well to light. Before the removal of the portion of bullet from the brain he felt always a dull pressure in the right eye, but this disappeared a few weeks after the removal. The vision was perfect. Dr. Hecke, the assistant-surgeon in charge, stated that the patient would often complain suddenly of feeling hot, and that his pupils would on these occasions become widely dilated, soon returning to their ordinary condition. In the right eye A = $\frac{1}{6}$ but only with great effort and after half a minute. No. 1½ Snellen was read fluently from 6″ to 18″. No. 3 from 6″ to 30″. Left eye, No. 3 fluently from 3″ to 40″; No. 1½ from 3½″ to 18″. In either eye S = 1. No defect of field. Fundus quite normal; pupils of equal diameter. The case presents, therefore, the very rare condition of a monocular paresis of accommodation from gunshot wound of the brain.

Eight cases of rupture of the eyeball. Enucleation in three cases. Anatomical conditions of the enucleated eyeballs. Sympathetic ophthalmia. Remarks on the indications for, and on the performance of, enucleation.—1. C. Slurzos, æt. 23, wounded on the 18th of August, before Metz. The ball entered 1″ in front of the tragus of the left ear, passed through the left zygoma, the outer margin of the orbit, the outer part of the sclerotic, the cornea, and made its exit through the upper lid. Dr. Cohn first saw the case four days later at Forbach. The left upper lid was tense and hard, with a lacerated wound at the middle of its margin, and on its inner surface a ragged wound of conjunctiva and cartilage. The conjunctiva of the globe much swollen and chemosed. The cornea presented a ragged opening which occupied four fifths of its surface, and from which a fissure passed in an outward direction for 3‴ into the sclerotic. The cavity was filled by a dark mass in which no trace of lens or iris could be seen, and vision was entirely lost. The wounded eye was acutely painful, and was at once removed, and placed in diluted chromic acid for examination. The choroid was found detached from the sclerotic by a large clot that nearly filled the remains of the eyeball, and there was evidence of commencing suppuration. The lens, iris, vitreous body, and retina were wanting, probably carried away by the ball. On the 25th of Sept. Dr. Cohn saw the patient again and found him convalescent. The right eye read Snellen No. 2 from 2½″, and No. 3 fluently to 36″. There was no pain on continued exercise of accommodation.

2. Börner, J., æt. 21, struck on the 16th of August, by a shot that entered the right eye and passed out through the neck. Seen by Dr. Cohn on the 20th. There was a small loss of substance of the margin of the tarsal cartilages, with cilia of both upper and lower lids, and the upper and inner quadrant of the cornea was separated from the rest by a gaping wound, through which a blood-tinged, watery fluid escaped. The sclerotic at the inner corneal margin is ruptured and separated from the neighbouring lower and outer portion by a wound 2‴ wide. The ocular conjunctiva chemosed, the eye very painful, the cornea turbid, vision totally lost. The whole left cheek was much swollen, hot, and painful, and there was marked facial paralysis. The ear was normal

but 2″ behind the lobe, at the margin of the hairy scalp, there was an inconspicuous small opening, with surrounding tenderness, discharging a little yellow serum. The vision of the left eye had been imperfect from youth, and its lids were then spasmodically affected. Enucleation was advised, but was necessarily deferred in consequence of other calls upon the surgeons. It was performed on the 24th, by which time impending panophthalmitis had made further progress, the facial paralysis being unchanged. The edges of the lid wounds were at the same time pared, and brought together by sutures. Recovery took place favorably, and on Sept. 20th the left eye read Snellen 1½ fluently over a range of from 2″ to 4″. Without a lens S = $\frac{1}{50}$, after neutralizing the myopia by — ¼, S = $\frac{1}{30}$. No distress of accommodation after prolonged reading.

The eyeball was examined by Dr. Waldeyer, but it was so much destroyed by the injury that nothing beyond diffuse purulent infiltration of the choroid was recognisable.

3, Legouey, æt. 22, struck by splinters of shell before Metz, on Aug. 17th. After remaining seven hours on the field he obtained cold compresses from a French surgeon at the church of a neighbouring village, and after two days was sent he knew not where. On the 24th of August he came to Dr. Cohn, by whom, according to his own account, he was for the first time carefully examined. Immediately after the injury there was, he said, a considerable fluid discharge from the right ear, whether of blood he did not know. There were numerous burns and abrasions of the skin over the right eyebrow, cheek, and side of the nose. The brows were powder-blackened, and at the outer extremity of the right eyebrow there was a lacerated wound ¼″ long, discharging a quantity of greenish pus. The right lids were closed, the upper lid was moderately swollen and somewhat hard. On raising it the conjunctiva was seen to be red and much swollen, and a scorched brownish mass occupied the place of the cornea. Loss of vision complete. There was purulent discharge from the right external auditory meatus, and a watch could not be heard with this ear. Enucleation was performed with some difficulty, it being impossible to detach the muscles entirely from the torn sclerotic; and the eyeball was so completely disorganised that nothing but the sclerotic was distinguishable. A large number of small fragments of shell were removed from the forehead, eyelid, and cheek, and cold compresses were applied. Good recovery followed, and on Oct. 3rd the report was that the stump had good movement downwards and outwards, but very little in other directions. Left eye normal, with no discomfort after continued use.

4. Sehn, H., æt. 23, struck by a chassepôt bullet at St. Privat, on Aug. 18th, and seen by Dr. Cohn on September 13th. The wound of entrance was in the right ala of the nose, and was brought together by sutures two hours after it was inflicted. The bullet passed through the nasal bone, the left superior maxilla, and the left eye, to the temple, shattering the upper part of the outer margin of the orbit, and escaping 2″ in front of the tragus of the left ear. Many splinters of bone had be removed from the nose and from the temporal region. The was reduced to a small stump, in which there was no tr and which was sensitive to touch. Conjunctiva of t

flamed. Movement downwards lost, movement inwards and outwards limited, movement upwards very limited. The right eye had M = $\frac{1}{15}$, with p.p. for No. 2 at 4½″, and was painful when used for very near vision. Field normal. Dr. Cohn warned the patient of the possibility of sympathetic ophthalmia, and advised him to submit to enucleation if the field should become contracted, or if the pain felt in accommodation should increase. On the 6th of October he saw the case again, and found a better state of things. The p.p. at 2″, the field normal, and all pain and inflammation had subsided.

5. Gommenginger, I., æt. 22, wounded on Aug. 6th at Spicheren, and seen by Dr. Cohn on Aug. 13th. A bullet had entered at the junction of the nasal bones with the frontal bone, shattering the cribriform lamella of the ethmoid and the zygomatic process of the right superior maxilla, tearing the right eye out of the orbit, and issuing on the lower and back part of the cheek, in front of the right ear. The orifices of the wound and the cavity of the orbit were covered by healthy granulations, with abundant purulent secretion, and pus was also discharged from the nose and mouth. Crepitus could be clearly felt about the zygoma. The cheek was much swollen and very painful on pressure, the swelling simulating facial paralysis. In the course of time many splinters of bone were removed, and recovery took place. On the 23rd of Sept. the patient was discharged, the left eye being of normal aspect and free from discomfort.

6. Max, K., æt. 27, wounded at Le Bourget on the 21st of December, at 9 a.m., when in the act of leaping over a ditch. Felt as if his left eye had been pierced by a needle, then lost consciousness and fell into the ditch, where he remained two hours. At five in the evening found himself a prisoner in the hospital at St. Denis. Had a sensation of emptiness in the left orbit, and was told that his eye was gone, but does not know whether it had been removed by the surgeons. The wound was inflicted by a round ball from a Remington rifle, and the ball, which he saw, seemed torn, as if it had been itself explosive. A portion of the patient's gold spectacle frame was imbedded in the bullet, and near this a portion of one of the lenses, fused to an opalescent condition. The bullet was extracted on the sixth day after the injury, from the left sterno-mastoid, about 3″ below the lobe of the ear. After suffering many privations he was given over to a Prussian outpost on the 5th of Feb., and Dr. Cohn saw him on the 11th of May. The margins of the lids were united towards the outer canthus, so that the fissure could not be opened more than 3‴, and about 2″ of the frontal process of the malar bone was wanting. The palpebral conjunctiva was almost of natural aspect, the ocular somewhat swollen. Nothing could be seen of the eyeball, the place of which was occupied by a cicatrix of two branches meeting at an angle, and with somewhat swollen margins. In the inner and upper part of the orbital cavity a probe detected some hard substance, somewhat but not very sensitive, possibly remains of an eyeball. Right eye M=3½, S=1, with difficulty, and under good illumination. Snellen No. 1 was read fluently from 2″ to 4″. Field of vision

[illegible]h of May, in very good daylight, he read S=1 with

[illegible]d him concerning the premonitory signs of

sympathetic ophthalmia, which might be excited if, as seemed possible, some portion of the spectacle were still imbedded in the orbit. He was supplied with an artificial eye, which was but little movable.

7. Steinmetz, F., æt. 26, struck on the right eye and cheek by shell splinters before Gravelotte, on the 18th of August. He was for some hours insensible, and on recovery found himself in a lazareth, where he discovered that he had lost the sight of his right eye, which gradually dwindled. During the first four weeks after the injury his left eye was very sensitive to light, and he had sensations of dazzling when he attempted to read. Dr. Cohn saw him in the following April, and found some badly healed scars about the right eyelids, and the globe shrivelled up to a small knob, freely movable in all directions, very soft, and not sensitive on pressure. The left eye quite normal.

8. Rakel, A., æt. 30, wounded by a chassepôt bullet before Le Mans, on the 10th of January. The ball pierced the root of the nose and the left eye, and passed out through the outer margin of the orbit. On the 10th of April Dr. Cohn found the left upper lid greatly thickened, with discharge of pus from the orbital cavity. On lifting the lid with a retractor, some hard substance was felt, but it was impossible to say whether this was the stump of the eyeball or a fragment of bone, since the patient was excessively sensitive to pain, and refused to take chloroform. The right eye was of normal aspect, and the pupil acted naturally, but the patient complained of constant dazzling when he looked at any object. He could only read No. 14, and that imperfectly. No convex lens helped him, but only produced increased strain. The dazzling had become much worse since he was wounded. An attempt to take the field of vision produced lacrymation and blepharospasm, and was therefore abandoned, but the field seemed to be totally defective on the inner side. The fundus was normal, except that the choroidal epithelium was almost wholly absent, and this atrophy seemed of old date, as it extended far forward. His vision with this eye was defective before the war. Dr. Cohn vainly urged him to submit to an exploration of the orbital cavity and to the removal of the stump or foreign body lodged there.

Upon the basis of these eight cases Dr. Cohn discusses the question whether an eyeball lacerated by shot should generally be enucleated, and if so, when? Two grounds are to be urged in favour of the operation. First, the dread of suppurative choroiditis (panophthalmitis); secondly, the dread of sympathetic ophthalmia.

With regard to panophthalmitis we know, from the experience of the time when cataracts were removed by flap extraction, and when suppuration of the eyeball occurred in a considerable percentage of the failures (although by the linear method it has been rendered excessively rare), with how great pain the distension of the eyeball by pus was attended. We know, also, that the panophthalmitis lasted three or four weeks, and in some cases the pain continued long after the evacuation of the pus, radiating over the whole head, destroying sleep, attended by fever, and materially reducing strength. Even in cases of rapid panophthalmitis, after wounds of the ciliary region, followed by shrinking of the eyeball, the cicatricial contraction has often produced

irritation of the ciliary nerves, attended by acute ciliary neuralgia, and by danger of sympathetic ophthalmia. If we may regard enucleation as a simple and not difficult operation, followed by little or no pain, and absolutely excluding the risk of sympathetic ophthalmia, then the indications for its performance become imperative in every case of perforating shot wound attended by loss of sight, unless they are counteracted by some danger connected with the proceeding. Dr. Cohn believes that only four cases of death after enucleation have been recorded. At the Heidelberg Congress of 1863, in a discussion on mortality after cataract operations, v. Gräfe observed that he had seen two cases of death after simple enucleation of the eyeball, performed during the acute stage of suppurative panophthalmitis with exophthalmia, and deprecated the performance of the operation at such a time, since he had never known it produce death under other circumstances. Upon this, Mannhardt cited a case of death from meningitis (no autopsy) after enucleation, and Horner another, in which the autopsy revealed a meningitis that was wholly unconnected with the parts within the orbit. Unfortunately, no full accounts of any of the cases were given, as they were only mentioned in course of the debate. Those of Mannhardt and Horner need hardly be here considered, but v. Gräfe's direct warning seems to be highly important. It is to be regretted that there is no clue to the histories of the cases, as v. Gräfe has only published one instance of enucleation in panophthalmitis, performed three years before the time referred to, and in which there is no mention of a fatal issue.

Mooren* relates an interesting case from the Austrian war in which a bullet struck near the union of the zygoma with the sphenoid bone, and made its exit behind the root of the nose on the inner margin of the opposite orbit. The patient was totally blind of both eyes immediately after the injury, and on the same evening the shattered eye was removed under chloroform in order to prevent suffering. The splintering of the lacrymal and ethmoid bones produced great swelling of the soft parts; and, as this subsided, the vision of the other eye slowly returned, until, after the disappearance of some serous infiltration of the retina, No. 1 Jäger could be read. Here, therefore, enucleation was performed prior to the commencement of panophthalmitis, and without danger to life. The same author has recorded 128 cases of enucleation, observing that he had never once seen any serious symptoms; and the operation has now become so common, for eyes blinded by tumours, cyclitis, phthisis, irido-cyclitis, or irido-choroiditis, that fatal cases would certainly have been made known if they had occurred. In the three instances related by Dr. Cohn, in which early enucleation was performed, there was evidence of impending panophthalmitis, and in all of them, instead of danger following the operation, the previously existing pain was promptly relieved.

As regards the risk of sympathetic ophthalmia, all ophthalmologists are now agreed that wounds of the eye, especially in the neighbourhood of the ciliary region, are attended by this danger. In fifty-two cases of sympathetic amaurosis, Mooren found twenty-four which had followed

* Beobachtungen.'

a wound of the ciliary body. The same author thinks it doubtful whether in all cases of panophthalmitis the disorganisation of the ciliary nerves is sufficiently complete to give entire immunity from the danger. Whenever, he observes, he has seen symptoms threatening the second eye follow a panophthalmitis, he has generally also found that the latter had left a painful stump. Although much in the history of sympathetic ophthalmia is still obscure, it is, at least, certain that any kind of injury to the ciliary nerves may excite it, and, unfortunately, the commencement of the mischief is often highly insidious. The patient is only brought to the surgeon by subjective symptoms at a time when the intractable disease has gone too far for vision to be preserved. Moreover, the commencement differs much in different cases, being indicated in some only by very slight concentric contraction of the field of vision, or by slight fatigue on looking at near objects, in others by rapid loss of sight, constant dazzling and dancing of objects before the eyes, or by lacrymation with photophobia. That there is no available remedy but enucleation, and that this often fails when practised however early after the appearance of symptoms, is known to all surgeons, and it may, therefore, be laid down that the enucleation of a shot blinded eye will preserve its fellow the more certainly the sooner it is performed, and that it should be performed prior to the occurrence of the smallest lacrymation or contraction of the field. In the case of common soldiers and others of the less educated classes, liable to be distant from skilled ophthalmic surgeons at their own homes, and to be tardy in seeking advice for their ailments, enucleation should be performed as a prophylactic measure in all perforating shot wounds causing blindness. The woollen seton recommended by v. Gräfe is, at least, of questionable trustworthiness for the end in view; and the section of the ciliary nerves, advised by v. Gräfe and first practised by Meyer, is open to the objection that it is difficult to be certain of dividing all the nerves by which mischief may be done, and that, when divided, they may reunite and restore the danger of sympathetic affection. It has been urged that for the reception of an artificial eye a wasted globe is better than enucleation. On this ground, Himly advised free division of the eyeball in panophthalmitis, and Williams the abscission of the anterior half by passing a cataract knife through the equator, and completing the section by scissors. Apart from the free bleeding from the choroidal vessels that would often be produced by such a course, it is evident that the movements of such a stump would be very imperfect, since the recti muscles are inserted in front of the equator. It cannot be denied that an artificial eye moves better when placed on the remains of the globe than when on the conjunctiva and muscles only; but it is also true that the stump is often irritated by the foreign body, and that sympathetic ophthalmia may be thus produced.

With regard to the method of enucleation Cohn observes that, although the operation is very easy when dealing with an unopened eye ball of ordinary tension, and with a natural conjunctiva, it becomes very difficult when the conjunctiva is swollen and the eyeball ruptured or very soft. In the former case the points of insertion of the muscles are not easily found. Dr. Cohn thinks it a matter of indifference whic

muscle is first divided, or in what order of succession they are taken. He objects to the method of the Vienna school, in which the muscle on the left side is divided at some distance from its insertion into the globe, and the portion still attached is seized by forceps and used to move the globe in any desired direction. To do this diminishes the mobility of the resulting stump towards the left. He also condemns the use of Mazeux's hook forceps, which permits the escape of the contents of the eyeball, and injures the preparation; but rather prefers spoon-bladed forceps, which will hold the eye without injury. He advises section of the optic nerve close to the eyeball, having observed, when it has been divided far back in cases of intraocular tumour, that the conjunctiva has retracted in healing, and the application of a glass eye has been rendered difficult.

Under the head of "*Shell Splinter in the Ciliary Body of the Right Eye*," is related the case of a man, æt. 26, who was wounded before Paris on the 20th of September, by a fragment of shell about a cubic line in diameter, which struck the right eye, and produced instantaneous blindness, soon followed by swelling. The patient was treated by poultices and atropine instillation for three months, at the end of which time the left eye began to redden, and objects before it appeared to quiver. The right eye was then removed by Dr. Hōring, and when Dr. Cohn saw the case, on the 27th of February, the sympathetic symptoms had wholly disappeared, although the patient believed that he could not see with his left eye quite as clearly as before the injury. The retina of the enucleated eye was wholly detached, the whole globe disorganised by inflammation, and the piece of shell was embedded in the ciliary body.

Two cases of grazed wounds of the eyeball contain little worthy of note, except that in one of them the bullet performed an iridectomy with great neatness. In both the injury was followed by blindness, due to detachment of the retina and effusions into the vitreous.

Four cases of wound of the upper eyelid are recorded, in one of which the shock seemed to have produced a rupture of the choroid near the equatorial region. In another the shock produced myopia $= \frac{1}{4}$, with S $\frac{1}{3}$, in an eye supposed to be previously healthy and emmetropic.

Five cases of wound of the upper jaw, in which the eyelids and eyes were implicated, give Dr. Cohn occasion to remark that he failed in obtaining primary union of eyelid wounds by paring their edges and inserting sutures seven or eight days after the wounds were inflicted, and when suppuration was proceeding. He removed all the bruised parts, and obtained exact apposition by silk threads. He refers to the possibility that silver wire might have succeeded better, but counsels early operation in such cases, whenever it is necessary to preserve the outline and position of the lids. The same cases show that there is no occasion to puncture the anterior chamber in order to evacuate effused blood, which will always be readily absorbed under a compressive bandage.

A case of *Contusion of the eyeball* is [illegible]ated at great length. A ball struck the outer margin of the left orbit, fracturing the bone and producing immediate total blindness. [illegible] cornea and iris retained

their normal aspect, but the nature of a white appearance upon the fundus could not be clearly made out. After a time sympathetic disturbance of the other eye supervened, and enucleation was performed. The white appearance was then found to be due to great inflammatory effusion in and upon the retina and choroid. The sympathetic symptoms disappeared after the enucleation, and vision, which had fallen to $\frac{1}{5}$, returned to the normal standard. The range of accommodation also increased after the enucleation from $\frac{1}{12}$ to $\frac{1}{4}$. The clinical interest of the case rests chiefly on the production of sympathetic troubles by an injury which implicated only the outer side of the sclerotic, and which neither directly, nor by the subsequent inflammation, affected the ciliary body.

A *Wound of the zygoma* by a rifle-ball was said by the patient to have been followed by defective vision, and the conditions were very analogous to those sometimes presented in civil practice by "railway cases." The injury was inflicted on the 18th of Aug. 1870; and the patient (twenty-one years old) was first seen by Dr. Cohn on the 6th of the following January. He presented the scar of the wound of entrance in the body of the right malar bone, about half an inch below the external canthus, and that of the wound of exit an inch and a quarter further back, over the temporal process. The patient said that for the first three months he could scarcely see at all with the right eye. It had received no direct injury, either internal or external, but seemed to protrude a very little more than its fellow, and its tension seemed somewhat higher. Field of vision normal. The optic nerve showed no excavation, and some slightly winding veins in the retina were found also in the other eye. There was no manifest difference in colour between the discs, but perhaps the right was a trace less red than the left. The pupils of equal size, the right somewhat more sluggish. The vision was very carefully tested on the 6th of January by Dr. Cohn's assistant, and on the 8th by Dr. Cohn himself, with the following results:

January 6.

Right eye.—Snellen $2\frac{1}{2}$ at $3\frac{1}{2}$", the smallest legible.
With + 10, $1\frac{1}{2}$ to $3\frac{1}{4}$".
M $\frac{1}{50}$, S $\frac{10}{200}$.

Left eye.—Snellen $1\frac{1}{2}$ from 5" to 9."
With + 10, $1\frac{1}{2}$ to 4".
M $\frac{1}{50}$, S $\frac{10}{100}$.

January 8.

Right eye.—Snellen $2\frac{1}{2}$ at $3\frac{1}{2}$", the smallest legible.
„ $3\frac{1}{2}$ from 2" to $4\frac{1}{4}$".
With + 10, $1\frac{1}{2}$ to $3\frac{3}{4}$".
M $\frac{1}{50}$, S $\frac{10}{100}$.

Left eye.—Snellen $1\frac{1}{2}$ from 5" to $10\frac{1}{2}$".
With + 10, $1\frac{1}{2}$ to 4".
M $\frac{1}{50}$, S $\frac{10}{100}$.

After atropinization of the right eye he read, on the 11th of January, with + 8, $2\frac{1}{2}$ Snellen from 3" to 7"; and with + 4, 2 Snellen from $1\frac{1}{2}$" to 3". The test-types employed on the different occasions were not the same, and the suspicion of malingering was excited when it was found that the S of the uninjured left eye varied from $\frac{1}{10}$ to $\frac{1}{20}$ between the

6th and 8th of January, both being light days, with snow on the ground and sunshine. Moreover, it seemed hardly credible that the S of the affected eye should range in the same time from $\frac{1}{200}$ to $\frac{1}{10}$. Dr. Cohn observes that there were only three possible explanations, either amblyopia from concussion of the retina, or amblyopia of long standing, or simulation. Such an effect from concussion is not very rare after injuries of the bones of the face; but, as the ophthalmoscope threw no light upon the question, the only other evidence of it was the somewhat sluggish action of the pupil. The prism tests of A. v. Graefe and of Alfred Graefe are sufficient for the detection of simulated monocular amaurosis, but they are useless against simulated amblyopia. The only way to detect such cases is by repeated trials with different types, and with and without glasses, in order to discover whether the statements of the patient are consistent with each other. In this case Dr. Cohn felt himself unable to arrive at a positive diagnosis, and therefore refrained from prescribing the hypodermic use of strychnine, to which he would have had recourse if he had placed full confidence in the statements made to him.

Another injury to the right eyebrow by a shell splinter, inflicted on the 30th of October, 1870, and producing great impairment of sight, came under observation on the 20th of March. Dr. Cohn then found a dark coloured projection, which seemed, when seen in the inverted image with an ocular of +3, the size of a large pin's head, occupying the region of the macula lutea. The patient with this eye could discern moving fingers, but could not count them, and letters of No. xx appeared distorted. The left eye was emmetropic, with $S = \frac{4}{6}$, and read $1\frac{1}{2}$ from $4\frac{1}{2}''$ to 22″, and 3 from 4″ to 40″ fluently. He was not treated, but was warned of the possibility of sympathetic disorder, and he returned on the 17th of April with a complaint of failing vision in the left eye. He said that a darkness appeared before it after ten minutes' reading, and that he saw round black spots floating to and fro. He could only read 3 Snellen with a near point at 8″. Enucleation of the right eye was performed, and on the 17th of July the vision of the left eye was again normal. The excised globe was found to present a subretinal hæmorrhage, which had lifted up the retina over the fovea into an elevated fold projecting into the vitreous, but left the microscopic elements apparently unchanged. The case is important, as illustrating the occurrence of sympathetic irritation four months after an inconsiderable hæmorrhage, without participation of the ciliary body in the injury, and without inflammation.

An appendix to the report contains two cases of injury to the lids, treated successfully by plastic operations, but of no special interest.

Foreign body in the orbit.—Dr. Borel,* of Rouen, describes a case in which the amber mouthpiece of a pipe was imbedded in the orbit by a blow, and was discovered and removed, after the lapse of ten days, without injury to the eye.

New instruments.—Only a few new instruments have been produced. Among the most important of these are the self-opening scissors of Dr. Noyes, of New York, in which the handles terminate in flattened

* 'Annales d'Oculistique,' 1872, i, 245.

springs instead of in the usual loops, and these springs are brought into tension by the closure of the blades, so as to open them again as soon as the hand of the operator is relaxed. Dr. Heymann* describes a pair of so-called needle-forceps for the removal of capsule. The instrument is a small pair of forceps, with ordinary teeth, and one blade is prolonged beyond the teeth as a cutting point. It is figured both in natural and in double size in the paper. Dr. Warlomont† speaks favorably of a set of iridectomy knives, resembling those used by Weber, of Darmstadt, in his cataract operation. The blades are shaped like the heart on playing cards, and four are provided, respectively of the width of two, three, four, and five millimètres. By selecting a blade of the width of the desired incision, and by introducing it to the full extent, the size of the internal corresponds exactly to that of the external wound. Dr. F. Monoyer, of Strasbourg,‡ has invented a pair of new double fixation forceps. They consist of ordinary forceps, carrying a terminal arc, each end of which is fitted with teeth in the ordinary way, so that they seize the conjunctiva at two points at once on opposite sides of the cornea. The two grasping extremities are 13 millimètres apart, and the arc on which they are placed is of 13 millimètres radius. The inventor states that they may be applied in any direction, and that they fix the eye more completely than any instrument that acts upon one point only.

(c) *Medicine and Therapeutics.*

On the visual sense in diseases of the choroid and retina.—Förster read a paper at the Heidelberg Congress on this subject,§ in which he started from the well-known fact of the want of correlation, in many diseases of the choroid and retina, between contraction of the field and impairment of the sense of vision. In certain affections, with a good light, the sense is not materially impaired, while if the light be lowered, it fails rapidly. In others, the reverse of this is the case. The author had made these well-known facts the basis of some researches, and believed that he had done something towards explaining them. He employed for this purpose a photometric apparatus, consisting of a rectangular box, twelve inches long by eight wide, and six high, having two holes, by which a patient could look into the interior, and another, two inches square and covered with white paper, for the admission of the light of a candle. This opening was fitted with two wings of blackened tin, which could be closed or opened at pleasure by means of a screw, and a scale and index served to show the size of the aperture, which could be varied from 1 to 1500 square millimètres. The objects of vision are black lines on a white ground, from 1 to 2 centimètres wide by 5 high, and the test is to determine by how small a degree of light they can be seen. The retinal sensibility, which the author calls L, will bear an inverse proportion to the size of the aperture of illumination. Thus,

* 'Archiv f. Ophth.,' xvii, 1.
† 'Annales d'Oculistique,' 1871, i, 97.
‡ Ibid., 1872, i, 64.
§ Ibid., 1872, i, 97.

an eye which required for the definition of the test objects ten times as much light as a normal eye, would have a retinal sensibility only one tenth as great. It follows that, if h be the minimum of light necessary for a normal eye, and H the minimum for a diseased eye, that $L = \frac{h}{H}$. A normal eye distinguishes the objects when $h = 2$ sq. mm. If, then, we take 2 sq. mm. to be = 1, and express H by half its actual value, the value of L will always be a fraction having 1 for its numerator. The annexed table gives the mean results of the examination in a large number of diseases. In the third column are placed the degrees of acuteness of vision, and in the fifth those of the retinal sensibility.

No.	Diagnosis.	S.	Square measure of illuminating aperture.	L.
1	Optic neuritis	$\frac{1}{100} - \frac{1}{5}$	2 — 8	$\frac{1}{1} - \frac{1}{4}$
2	Apoplectic retinitis . . .	$\frac{1}{20}$	25	$\frac{1}{13} - \frac{1}{8}$
3	Retinal apoplexy . . .	$\frac{1}{4}$	12	$\frac{1}{6}$
4	Albuminuric retinitis (fatty degeneration)	$\frac{1}{1} - \frac{1}{100}$	2 — 4	$\frac{1}{1} - \frac{1}{2}$
5	White atrophy of optic nerve .	$\frac{1}{2} - \frac{1}{20}$	2 — 12	$\frac{1}{1} - \frac{1}{6}$
6	Hemiopia in cerebral apoplexy .	$\frac{2}{3}$	12	$\frac{1}{6}$
7	Amblyopia from abuse of alcohol or tobacco	$\frac{1}{5}$	2	$\frac{1}{1}$
8	Syphilitic choroiditis . . .	$\frac{1}{3} - \frac{1}{5}$	128 — 1500	$\frac{1}{64} - \frac{1}{750}$
9	Disseminated choroiditis . .	$\frac{2}{5} - \frac{1}{20}$	112 — 450	$\frac{1}{56} - \frac{1}{225}$
10	Pigmentary retinitis . . .	$\frac{2}{3} - \frac{1}{5}$	50 — 1500	$\frac{1}{25} - \frac{1}{750}$
11	Separation of retina . . .	$\frac{1}{4} - \frac{1}{8}$	312 — 1500	$\frac{1}{156} - \frac{1}{750}$
12	Yellow atrophy of optic nerve (from syphilitic choroiditis)	$\frac{1}{8} - \frac{1}{20}$	612 — 1500	$\frac{1}{306} - \frac{1}{750}$
13	Normal eye	$\frac{1}{1}$	2	$\frac{1}{1}$

There are, therefore, two groups of diseases. In the first, from Nos. 1 to 7 inclusive the retinal sensibility is very little diminished. In the second, from 8 to 12, it is very considerably diminished, so much so that in many cases the full opening of 1500 square millimètres was yet insufficient. The author called attention to the fact that the morbid processes of the former group were such as to affect chiefly the conducting portions of the visual apparatus, such as the fibrous and ganglionic layers of the retina, the optic nerve as far as the brain, and perhaps the brain itself, while those of the latter affected chiefly the choroid and the perceptive layer of the retina. Glaucoma had been omitted from the table on account of the variableness of the results. In inflammatory cases, and during the premonitory stage of cases of a certain degree of acuteness, the visual sense was much diminished. In chronic cases the results differed greatly.

Some observations followed on the value of this examination as a means of diagnosis, *e. g.* in negativing the suspicion of retinal detachment in a case of turbid vitreous, in which L retained a high value; and in determining the cure of syphilitic affections of the choroid. The author also used his instrument to discover whether a scotoma was

positive, *i. e.* depending on a choroidal lesion implicating the perceptive layers of the retina; or negative, depending on lesion of the conducting tissues. The former was rendered more conspicuous by dim light, but not the latter.

Dr. v. Hippel read a paper on a similar subject, in which he condemned the instrument of Dr. Förster as being too small for the accurate determination of S together with L, and described one of his own on a similar principle, but on a larger scale. His results, from the examination of fifty cases, were confirmatory of those of Förster. In the subsequent discussion Dr. A. Weber said that he also had used a similar instrument with advantage.

Circumscribed choroiditis.—Dr. A. Sichel* has written an important memoir on circumscribed choroiditis, a disorder first described by Jäger under the name of "change in the region of the macula," and since then little noticed. The author has collected several cases of the affection, and has, so to speak, built up its clinical history. He describes it as being characterised by the presence, in a single defined part of the fundus of the eye, of changes analogous to those which occur in the disseminated or areolar forms of choroiditis. On examination with the ophthalmoscope there is seen sometimes a simple tumefaction or hyperæmia of a very limited portion of the fundus, situated excentrically on the side beyond the equator, or more centrally, or even over the region of the macula; and sometimes a single spot or several small spots of whitish or yellowish-white colour, in the latter case grouped so closely together as to form a little patch of agglomerated lesions on a single part of the field, while the most careful examination reveals no changes elsewhere. Instead of being whitish or yellowish-white, the spot or spots may be of reddish-black or brown with notched edges surrounded by a zone either paler or more dark; or there may be a more or less white patch in the centre, surrounded by a border variously coloured. The disorder may be divided, in accordance with the symptoms and the ophthalmoscopic appearances, into four stages or periods, namely:—1. The period of hyperæmia and local congestion. 2. The period of exudation and fatty proliferation. 3. The regressive or pigmentary period. 4. The period of atrophy. These periods are important, because during the two first the malady is within the reach of treatment, while during the two last its effects are produced, and are practically irremediable.

The first subjective symptom experienced by the patient is a very annoying myodopsia, the spot resting always in the same part of the field of vision, and becoming more marked after long use of the eye, or after exposure to strong illumination. Often, after having continued for a time, the myodopsia gives place to a more or less pronounced haze or mist, which may either occupy a single portion of the field, or may render all objects indistinct. Two other symptoms soon appear, and produce great annoyance. The first is a photophobia, occurring at every change from a less to a greater degree of illumination, and often accompanied by an appearance of rays, proceeding from any source of light, in the direction of the impaired part of the field. The second is

* 'Annales d'Oculistique,' 1872, i, 129—156.

a sharp constrictive or penetrating pain in the eye, such as to render its movements very painful; and if the seat of mischief, as determined by the ophthalmoscope, be sufficiently near the equator to allow the corresponding part of the ocular tunics to be reached from without when the eye is strongly turned in the opposite direction, it will be found that this part is acutely sensitive to the touch, like the ciliary region in cyclitis. Little by little the various symptoms diminish or increase, until they terminate in a fixed scrotoma, centric or excentric, according to the position of the lesion, and which, when centric, is often attended by the apparent distortion of objects in the portion of the field around the fault, in consequence of alterations in the plane of the retinal surface. The differential diagnosis from disseminated choroiditis, of which the malady is, indeed, but a variety, rests on the absence of spots on other portions of the field. At one period, when the retina is elevated by hyperæmia or effusion, it might be possible to suspect the early stage of a choroidal tumour. But such growths are always attended by retinal detachment, the more extensive as they are more central, and this element in the case being wholly wanting, error would be impossible.

The causes of circumscribed choroiditis are far from being as well defined as those of the disseminated variety. In the cases seen by the author he has never been able to discover indications of syphilis. Certain conditions, however, seem to be always associated with the disease, namely, habitual constipation, suppression or irregularity of the menses in women, suppression of a hæmorrhoidal flux in men. Indications of a tendency to congestion about the head have been met with in the majority of cases, and in some of the women there has been chlorosis. Lastly, when the malady attacks the posterior pole, it has usually been associated with myopia.

The course of the disease may be either rapid and, so to speak, acute, or it may be slow and chronic. In the former case it may pass through all its periods in the course of a few weeks, but its ordinary duration is three months, or even more. If left to itself it would always terminate in circumscribed atrophy of the choroid, which would injure vision by producing a permanent scotoma. Only when arrested by treatment does it terminate in a restoration to the healthy condition.

In respect of treatment the author first advises that any general cause of the malady should be sought for, and should receive such attention as it may require. Besides this, he mentions four remedies which he has been accustomed to employ with benefit. The first is depletion by Heurteloup's leech from the temple, in a quantity proportionate to the severity of the affection and the state of the patient. This has proved most useful at the beginning of the disorder, and after the depletion the patient should always be kept for from twenty-four to thirty-six hours in absolute darkness, a precaution the neglect of which invalidates the benefit of the leeching. The second means is the use of Neapolitan ointment, by friction, to various parts of the body, the quantity used at once varying from 50 centigrammes to 2 grammes, and the application being made night and morning. The third is the administration of Sirop de Gibert, which in these cases, as in the disorders

of the vitreous body, will be found of great service. The fourth is the application to the forehead and temple, on one or both sides, accordingly as one or both eyes are affected, of a series of from three to five flying blisters, a resource that has scarcely ever failed to produce marked benefit. The paper terminates with a detailed recital of six cases, which support the statements and conclusions of the author.

Researches on syphilitic amaurosis and amblyopia, by Dr. Galezowski.* The author arrives at the following conclusions:

1. Syphilitic retinitis and neuritis may exist without any change in the choroid, and most frequently under the form of an apoplectic and exudative retinitis. Such cases, however, are only exceptional.

2. Syphilitic retinitis presents no pathognomonic signs by which it may be distinguished from other forms of retinitis.

3. But if retinitis or optic neuritis be attended by iritis or choroiditis, with or without flocculi in the vitreous, it is then undoubtedly syphilitic. Experience shows that there is no other affection except glaucoma that will give rise at once to retinal hæmorrhage and to iritis or choroiditis.

4. Disturbances of colour vision are constant in these two forms of eye disease, and especially in optic neuritis.

5. The most effectual treatment of these maladies is by iodide of potassium and perchloride of mercury in full doses.

6. Syphilitic choroiditis is the most frequent lesion in cases of syphilitic amaurosis or amblyopia. The signs of this form of choroiditis are very characteristic, or even pathognomonic of syphilis. They are:—1. Disturbance or loss of sight occurring by attacks or crises, often separated by long intervals. 2. A mist resembling cobweb floating constantly before the eye. 3. Frequent photopsia. 4. Photophobia. 5. Hemeralopia at an advanced stage of the disease. 6. Preservation of central vision for a long period, with peripheral contraction of the field. 7. Obscured outline of optic disc. 8. Pigmentary retinitis at a still more advanced stage of the disease. 9. Atrophy of the central vessels of the disc with preservation of the rosy tint due to the cerebral or nutritive vessels of the optic nerve.

7. Pigmentary retinitis is very often developed as a consequence of syphilitic choroiditis.

8. The pigmentary spots arrange themselves along the course of the retinal vessels, and also in a generally circular form, like the circles of herpes circinnatus.

9. The acquired pigmentary retinitis of syphilis does not differ from the congenital form, especially from that which has been attributed to the consanguinity of parents, except in the circular form of the pigmentary spots.

10. Congenital pigmentary retinitis is an hereditary syphilitic affection.

11. Congenital pigmentary retinitis should be subjected during infancy to an iodine or mercurial treatment. After a certain age it is no longer possible to arrest the progress of the malady, which becomes progressive, and at length destroys the sight.

12. The children of syphilitic parents should be submitted to careful ophthalmoscopic examination from their birth; and, retinitis once recognised, it should be treated in the manner indicated above.

* 'Arch. Gen. de Méd.,' Jan., Fev., Mars, 1871.

REPORT

ON

MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN.

BY

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I. GYNÆCOLOGY, EMBRACING THE PHYSIOLOGY AND PATHOLOGY OF THE NON-PREGNANT STATE.

Anomalies of Structure.

DR. L. NEUGEBAUER relates ('Archiv für Gynäkologie,' ii, 2, 1871) two cases observed by him of one-sided hæmatometra with double uterus. The first patient was nineteen years old. She had commenced to menstruate at seventeen; the flow was profuse, and there was excessive pain in the lower abdomen and pelvis. A swelling, larger than a fist, appeared in the hypogastrium. After menstruating regularly a few times there was amenorrhœa and absence of pain for several months. Menstruation returned with great suffering. A swelling extending nearly to the umbilicus was to be felt on the right side of the abdomen. Having arrived at the diagnosis by the position, shape, and relations of the tumour, and fearing spontaneous rupture, Neugebauer opened the pelvic swelling with a bistoury by the vagina, and dark brown, odourless, viscous blood, of the consistence of thin honey, flowed away. There was sharp abdominal pain on the second day, but the patient improved until the fourteenth day, when menstruation returned, and she died in three days with symptoms of peritonitis. The second case was that of a patient of the same age. Menstruation scanty and painful. A swelling on the left side, nearly the size of the uterus at the sixth month of pregnancy. The uterine cavity of the right side freely communicated with the vagina. Dr. Chivat opened the swelling by the vagina by pushing an ordinary uterine sound into it. Slight fever and abdominal pain for the first three days. On the thirty-fifth day there suddenly supervened severe pain in the left hip, then high fever, frequent vomiting, and escape of blood-stained muco-

pus from the vagina. She died in forty-eight days after the operation. Neugebauer refers to several published cases of the kind in which the age ranged from fourteen to twenty-seven. The length of time between the onset of the pains from retention of the menstrual discharge and the commencement of the treatment on account of the hæmatometra varied from five weeks to fifteen years. Out of fifteen cases operated upon, eight recovered and seven died.

Two cases of hæmatometra in the closed canal of a bicornite uterus are also recorded by Freund and Wheeler ("Boston Journal," July, 1871). Steiner also writes ("Wien. Med. Wochs.," xxi. 29, 1871) on hæmatometra.

Breisky relates ("Archiv f. Gynäk.," ii. 1, 1871) a case of pyometra and pyokolpos lateralis in a girl the subject of a double uterus. She had five brothers and two sisters, all well formed. Often, as a child, she had suffered from abdominal pains, supposed to be due to worms; at the age of sixteen she began to suffer regularly every month for three or four days from severe pelvic pains, but no menstrual discharge appeared. There was obstinate constipation, great anæmia, and difficult micturition. When on the point of seeking medical advice something burst, to her great relief, and a quantity of pale red, thickish, fœtid fluid escaped. The difficult micturition returned; Breisky punctured a swelling in the vagina, and an abundant quantity of pus was discharged. The cavity of the abscess was carefully washed out. Subsequent dilatation enabled the condition of parts to be ascertained, and Breisky divided the vaginal septum and part of the uterine septum. The patient made a good recovery, and the right half of the uterus (the seat of the abscess) afterwards underwent such contraction that its cavity appeared shorter than that of the left. As ascertained by the sound the right measured 4 cm. and the left 6 cm.

Two cases of *absence of the vagina* are recorded by Branco. In the first case, æt. 25, the vulva was normal; no trace of a vagina existed, but it was determined to attempt the formation of one. The tissue which had to be dissected was a little more resisting than ordinary cellular tissue. The uterus was reached and punctured on account of the menstrual retention. After a severe attack of peritonitis the patient recovered. A second puncture was necessary in fifteen months, and when the patient was last seen the vagina was much contracted. In the second case, æt. 20, the treatment was more successful, the vagina being kept dilated. Branco controverts the opinion of Scanzoni that complete absence of the vagina is not met with except in conjunction with absence or a rudimentary state of the uterus, and nearly always with deformity of the vulva. He shows that the development of the genital organs takes place in three zones, independent the one of the other; the external parts in the external layer of the blastoderm, the internal organs in the blastema interposed between the two layers of the blastoderm, but the vagina is formed in the fold of division which arises in the primitive cloaca. He disapproves of operative interference except for menstrual retention; and the operation should not be performed at a menstrual period. ("Journ. de Bruxelles," Nov. 1871.)

A woman, æt. 26, who had miscarried four times, was found, after death, to have the ovary, Fallopian tube, and ligaments of the left side entirely absent. This side of the uterus was perfectly free, and the muscular structure was smoothly covered by peritoneum throughout. Ling ('Lancet,' Sep. 1872). A patient, æt. 18, who had never menstruated, died in St. George's Hospital, and the uterus was found to be absent, though the ovaries were well developed. The only representative of a uterus was a small nodule of fibrous tissue found in the folds of peritoneum between the rectum and the bladder ('Lancet,' Aug. 1872).

Cases of absence of the uterus and the vagina form the subjects of interesting remarks on malformations of the female genitalia by Richet and by Gallard (L'Union Méd.,' 1872).

Dr. Aikman describes a case of double uterus and vagina. A septum, rather thicker than the vaginal wall, extended from about three quarters of an inch above the hymen to midway between the uterine orifices. The uterus, which had a tumour attached to its fundus, was four inches long. It was divided into two cavities. The left cavity was perfect as far as the internal os, it then tapered to end in the left Fallopian tube. The right cavity had the usual shape of the right half of the uterine cavity, and communicated freely with the right Fallopian tube. ('Glasgow Journal,' May, 1872.)

A case of congenital absence of the uterus and vagina is recorded by Dr. Smith ('Brit. Med. Journ.,' Nov. 1872). The vulva was well formed, the mammæ were large and flabby.

Absence of vagina and uterus. Warner ('Boston Journal,' Jan. 1872).

Double uterus and vagina in a young woman who died of epilepsy. There was only one kidney. Roberts ('Brit. Med. Journ.,' June, 1872).

Double uterus with concurrent pregnancy. Ross ('Lancet,' July, 1871).

Schatz records seven cases of incomplete union of the female genital canal in adults ('Arch. f. Gynäk.,' ii, 2, 1871).

Schatz also relates a remarkable case of deformity of the urino-genital system in an infant. There was a double uterus, a double vagina, a double bladder, and a double vesico-vaginal fistula. The mother of the child was a healthy woman, and had previously had one child, a boy, in every way well formed. In this, her second labour, there was only very little liquor amnii, and the cord contained only one artery. ('Arch. f. Gynäk.,' iii, 2, 1872.)

Dr. Squarey contributes ('Obst. Trans.,' 1872) three cases of absence of the uterus, the patients being sisters.

M. Lorain mentions the case of a woman who, being examined after a premature confinement, presented four breasts. Two of these occupied the normal region; the two others were situated near the axillæ, and were the size of a small orange. There was milk in the four breasts. ('Lancet,' June, 1871.)

Menstruation.

Early appearance of menstruation.—Mr. Ashton states ('Lancet,' March, 1871) that he has a patient, æt. 7, who had a slight red discharge from the vagina two weeks after birth. This recurred sometimes once a month, at other times after an interval of two or three months, till the child was four years old. Since then the discharge has been "regular," and sufficient in quantity to soil one diaper. The child's mother first menstruated when nine years old, and the mother's aunt at the age of seven.

Flugel records ('Centr. f. Med. Wiss.,' Feb. 1872) a case in which menstruation commenced at eighteen months, and continued with fair regularity until death at the age of five and a half years. The child was five feet high.

Disorders of Menstruation.

Dr. Rockwell reports ('Amer. Journal of Obstetrics,' May, 1872) eight cases of amenorrhœa—one of the cases was of four years' duration and another of two years and a half—in all of which menstruation reappeared after the use of faradization or galvanism. General faradization is indicated in those conditions of debility where a general and powerful tonic influence is called for. Faradization localised externally is but slightly efficacious. The electro-muscular contractility of the abdominal muscles is so great that a current of but little tension can be used, and neither by reflex nor direct action can the great sympathetic in this way be decidedly influenced. Faradization localised internally, however, is a very effective method of treatment, and by it the uterus can be more thoroughly and powerfully influenced than in any other way. Sometimes central galvanization or peripheral galvanization, either external or internal, is more effectual.

Dr. Wade, in a clinical lecture ('Brit. Med. Journ.,' July, 1872), concludes that (1) chlorosis occurring in young women who have menstruated at all is commonly the result of the loss of blood by the menstrual discharge; (2) when amenorrhœa occurs in these cases it is a consequence, and not a cause, of the anæmia; and (3) both primary and subsequent menstruations produce on the system the same effects that would be produced by any other hæmorrhage of equal amount. Gaillard Thomas ('Diseases of Women,' 1872) believes that chlorosis is a neurosis of the ganglionic system of nerves. Disordering the control which this system exerts over the functions of organic life, it produces, as symptoms of its existence, impoverishment of the blood, constipation, dyspepsia, palpitation, and menstrual derangements and irregularities. Many observers have thought, from its ordinary period of invasion being the time of puberty, when the dormant functions of the ovaries are aroused, that it is dependent on some derangement in ovulation and menstruation; but it is more probable that torpidity of the uterus and ovaries is, like the peculiar blood state which is so characteristic of the disorder, merely a symptom of functional disease in the sympathetic system of nerves. Several French pathologists have of late years advanced the view that chlorosis differs from anæmia mainly in this—

that the latter is merely a blood state, while the former is a disease of the nervous system, which may or may not produce the latter. Raciborsky also regards chlorosis as due to disorder affecting the ganglionic nervous system.

Virchow has lately written on the relation between chlorosis and vascular abnormalities ('Ueber die Chlorose,' &c., Berlin, 1872).

A case of "supplementary" hæmorrhage from the breasts in a girl who had not menstruated is recorded by Meynet. The patient was seventeen years of age on admission to Hôtel Dieu, and stated that for eight months she had each month suffered from a rather free discharge of blood, lasting two or three days, from a crack in the nipple, sometimes on one side, sometimes on the other. The hæmorrhage was preceded by pain and swelling of the breasts. Although she had never menstruated, she suffered, at the time of the monthly discharge from the breasts, from abdominal pain and a sensation of fulness. The patient was under observation for three months, and the above-mentioned facts were observed each month. In two months after she left the hospital, where she had been treated by tonics, menstruation appeared naturally, and nothing abnormal was subsequently noticed in the breasts ('Lyon Méd.,' March, 1872).

A case of so-called vicarious menstruation by hæmorrhage from the nose is related by Obermeier. The epistaxis ceased during pregnancy ('Virchow's Archiv,' 1872).

Dysmenorrhœa.

Decidua Menstrualis.—A case of the inflammatory form of dysmenorrhœa. Dr. A. Sölowieff, of Kasan, relates ('Archiv f. Gynäk.,' ii, 1, 1871) a case of the above. The patient was twenty-one years of age, and had been ill three years. Menstruation began at eleven, was always irregular, and accompanied with great pains. Married at sixteen and a half. Pregnant in four months. Labour at full time. Left off suckling at eight months. The first menstruation after weaning was painless, but the following period did not appear at the proper time, and the patient suffered from a sensation of weight in the lower part of the abdomen and especially in standing up and in walking. The menses appeared in a fortnight, attended with strong pains, and on the third day a mass, the exact shape of the uterine cavity, was passed. These pains did not disappear, but increased in severity at each menstrual period. The vagina was red and so sensitive that it could not even be touched. A similar mass appeared at each period. Menstruation was always delayed a week or two. Patient bedridden. Great irritability; neuralgia in different parts of the body; hyperæsthesia of the skin, especially of the abdomen; disorders of digestion; intestinal pains. The sensitiveness of the vagina diminished, so that the introduction of a very small speculum was, with great trouble, possible. The uterus was more congested than natural, and somewhat enlarged; the most tender part was the vaginal roof, touching which called forth a succession of reflex hysterical symptoms. Various kinds of treatment were employed, but the most useful was the injection of

cannot be doubted that the flexion was the source of trouble, and his experience leads him to think that flexions by themselves, independent of their complications, ought to be considered as a pathological change deserving special treatment. ('Gaz. Med. di Torino,' 1871.)

Dr. Edis writes in favour of dilatation of the cervix uteri by graduated bougies in cases of anteflexion and dysmenorrhœa. He commences with an ordinary No. 8 bougie and passes it once a week, gradually increasing the size, and he allows it to remain in for about ten minutes. This method of treatment is capable of far more universal application than the insertion of a stem into the uterus. Three illustrative cases are added. In the first case the patient had been married sixteen years and was sterile. She suffered great dysmenorrhœa, but was soon relieved by the above treatment. The second case was that of a woman, æt. 38, married seven years, sterile. Not only was the dysmenorrhœa relieved, but she became pregnant. The third case could not tolerate a stem, but dilatation by metal bougies had the effect of getting rid of all inconvenience at the catamenial period. ('Brit. Med. Journ.,' Nov. 1871.)

Mollière relates a case where a patient, after using a cold vaginal injection a few days after menstruation, was seized with severe peritonitis, from which she died ('Journ. de Bruxelles,' May, 1871).

Uterine Tumours, &c.

Dr. Hegar describes ('Archiv f. Gynäk.,' ii, 1, 1871) sarcoma of the uterus. He submits that this morbid growth is more common than is generally believed. It occurs in two principal forms:—(1) There are multiple tumours, more or less distinct; (2) there is a diffuse infiltration. In situation and relation to the uterine wall they present a great likeness to the intramural fibrous tumours. The seat is almost always the body of the uterus. Veit's case, in which the cervix was affected, is unique. For the most part the sarcomatous tumours repose, with a broad basis, upon the inner surface of the fundus and body, projecting into the enlarged cavity, as not seldom do the intramural fibro-myomas. A kind of stalk is rare. Sometimes, as West says, together with the intra-uterine tumours there is a second division, which develops itself towards the abdominal cavity either in the iliac fossa or in Douglas's pouch, reaching even to the lumbar region. The intra-uterine tumour seldom possesses a distinct investment, but a thick, smooth, fibrous capsule may exist. Invasion of the new formation into the cervix may take place. Either a uniform infiltration of both walls or of one wall and lip, with or without ulceration of the os uteri, or tumours connected with those of the body spring from the inner surface of the neck, or, lastly, larger tumours proceeding from one lip fill, like monstrous hypertrophies, the vagina. In a second order of cases the sarcoma presents itself as a diffuse infiltration of the mucous membrane, submucous membrane, and even of the proper muscular wall. There is on the inner surface of the uterus a large ulcerated surface, with fungous granulations, necrotic débris of the original

[illegible]

[illegible] The previous health has been described as excellent. But in a small number of cases distress pointing to antecedent disease of the sexual organs has been complained of as dysmenorrhœa, irregular, frequent, protracted menstruation, discharges rather watery than sanguineous, leucorrhœa, abortions, sterility and sometimes hysterical and nervous habits. One of the earliest signs of the existence of the tumour is menorrhagia. This is very often [illegible] irregular or persistent [illegible]. Offensive mucous discharge was in one case the first symp- [illegible] by bleeding. Peculiar hæmorrhages and an offensive [illegible] like discharge are rarely absent. These dis-

charges may resemble those of carcinoma of the cervix, but the odour is generally less penetrating. At a later stage the discharges contain numerous small and larger shreds of the tumour. Sometimes a polypoid projecting portion is cast off, or falls into purulent degeneration, giving rise to an intolerable stench. To these discharges are sometimes added as early symptoms a sensation of pressure, of bearing-down pain in the sacrum, in the pelvis, pressure on the rectum, dysuria. But Hegar does not agree with Gusserow in admitting that pain is constant and early. Mostly the pains possess a labour-like character and point to real contractions. Besides these principal symptoms there are numerous so-called consensual symptoms, such as attend the most different diseases of the sexual organs, especially disorders of digestion, cardialgia, &c., nervous symptoms, nutrition suffers; from dysuria hydronephrosis may follow. The constant issue is death, which either ensues from exhaustion through the protracted discharges, through pyæmia, or the consecutive diseases. Objective symptoms in the living vary according to the anatomical relations of the new growth. Through the abdominal walls we may feel tumours of varying size, knobby, overlapping, or distinct, between which the body of the uterus may be made out or lost in the imbedded tumours. If, in the case of an intrauterine tumour, rapid degeneration does not ensue, the cervix gradually dilates, its wall softens, its lips disappear, the os uteri opens, and the tumour is driven through, perhaps into the vagina, simulating a fibrous polypus, when it becomes gangrenous, suppurative, and is cast off in larger or smaller pieces. The sound generally indicates an enlarged cavity of the body of the uterus, and strikes upon rough, irregular places. The mobility of the uterus is often retained for a long time. At a late stage peritonitis, proceeding from the extension of the disease to the neighbouring organs, may fix the organ. The diagnosis is generally clear, but the microscope alone makes it certain. It is easy to get small portions of the tumour. Simple hyperplastic growths are distinguished by their fibrous connective tissue muscular substance, vessels, follicles, glands. The duration of the disease is variable—from five months to six years. But it lasts longer than carcinoma of the cervix. The treatment is simple. If the cervix is not dilated, it must be dilated, so that the finger may reach the basis of the tumour and permit its removal by scissors or polypus forceps. Generally hooks tear out and will not hold. After the operation, Hegar has introduced potassa fusa; a copious discharge followed, bringing away shreds of the tumour. Hegar concludes by relating eight cases. [From 'Brit. and Foreign Med.-Chir. Review,' July, 1871.]

Winckel also describes two cases of sarcoma of the uterus and the microscopical appearances of the growths ('Arch. f. Gyn.,' iii, 2, 1872). See also Babl-Rückhard ('Beit. zu Gynäk.,' Berlin, p. 76, 1872).

Dr. Noeggerath removed from the posterior surface of the uterus by a curette a small growth the size of a pea, in which were felt hard points, sandy to the touch. The growth was an adenoid tumour, and an example of the growths called by Virchow *psammomata*. ('Amer. Journ. of Obst.,' Feb. 1872.)

An inverted uterus with an intramural fibroid was removed by ecrase-

depressed to the vulva by the hand of an assistant placed over the hypogastrium, a tenaculum fixed in the cervix, and the vagina cautiously dilated so as to admit the entire hand. An incision should afterwards be made into the most depending part of the tumour, and its capsule stripped off it as much as possible. The removal of the tumour will often prove an easy task, and even cases apparently most difficult will yield to a persevering, bold, and cautious effort. Reports of five completed cases are given without a single death. Thomas has, however, had two fatal cases from peritonitis during the preparatory dilatation. He does not wish to be understood as comparing the advantages of enucleation with those of excision or ecrasement. Enucleation is to a great extent a *dernier ressort*, to be employed only when the less dangerous methods are entirely impracticable from the fact that the sessile nature of the attachment does not allow of its being grasped by a wire or chain. ('Amer. Journ. of Obst.,' May, 1872.)

Dr. Meadows writes on the treatment of fibrous tumours of the uterus, and recommends more frequent and decided resort to operative interference, especially in the interstitial and submucous varieties. These tumours are to be regarded as essentially foreign bodies, and nature's method of dealing with them, when fair play is allowed her, is to expel them. In order to do this a dilated os uteri and uterine contraction are essential, and when these are wanting it is the duty of the physician to remedy the deficiency by free division of the circular fibres of the cervix uteri in several directions, and by promoting contraction of the uterus by every means in his power. These two measures will be greatly aided by subsequent detachment of the tumour, making it more and more like a foreign body. An illustrative case is added. The neck of the uterus was freely divided, and the patient advised to return in three months. The os uteri then admitted the finger, and the tumour could be felt presenting. The next stage was then attempted, viz. the separation of the tumour from its attachment as far as the finger could reach. This was repeated, the descent of the growth was facilitated by the administration of ergot, and it was ultimately removed, the patient being discharged cured. The author states that he has never attempted, and does not think that he ever will attempt, the process of gouging, enucleation, or destruction by the actual cautery. ('Brit. Med. Journ.,' Dec. 1871.)

A case of death from septicæmia after the removal of a uterine fibroid is recorded by Dr. Emmet. The growth had been cut into masses by scissors and broken up. ('Amer. Journ. of Obst.,' Feb. 1872.)

Spencer Wells reports a successful case of removal of a uterine fibroid by abdominal section. ('Med. Times Gaz.,' July, 1871.)

Dr. Kidd, in a paper on uterine fibroids ('Dublin Journal,' Aug. 1872), states that in some cases he has dilated the uterus and applied nitric acid. This is often beneficial; the tumour is checked in its growth, and the hæmorrhage very much lessened. Dr. Kidd has seen very serious results from the perchloride of iron introduced into the uterus for these tumours. In the last case in which he tried it the woman got a low form of metritis and died. He points out that in cases of intra-uterine polypi the tumour often bulges out the wall of

the uterus opposite to where it is attached. A steel wire is sometimes much more efficient for their removal than a soft iron wire. The steel wire can be compressed to get it through the os uteri, and it then expands by its own elasticity, and is easily slipped over the tumour.

An excellent description of the various kinds of uterine polypi is given by Duncan ('Edin. Med. Journ.,' July, 1872).

Guenior, in a treatise on the absorption of fibroids of the uterus, states that the disappearance of such tumours by absorption, although still denied, ought now to be accepted as an ascertained truth. They sometimes disappear even rapidly, a few months sufficing for the disappearance of very large uterine myomas. According to the ascertained facts the absorption takes place during the period of sexual activity, but the puerperal state only exceptionally seems to exercise an evident influence over it. Uterine myomas may also disappear without operation by two other processes, viz. spontaneous expulsion and gangrenous destruction or suppuration; but their disappearance by absorption is the only method exempt from danger and always followed by recovery. Fatty degeneration, judging from analogy, appears necessary as a preliminary to their absorption, and Guénior thinks that such substances as favour this change should be employed, such as arsenic, phosphorus, and lead. ('Arch. Géner. de Méd.,' April, 1872.)

A fibroid of the uterus, weighing nine ounces, is reported by Dr. Hardie, in the practice of Dr. Duncan, to have become spontaneously separated. It lay in the vagina in a putrified state, and set up chronic septicæmia, from which the patient quickly recovered after the removal of the tumour. ('Med. Times and Gaz.,' July, 1872.)

Dr. Brunton ('Obstet. Trans.,' xiii) believes that in a case of fibroid enlargement of the uterus ergot of rye promoted the disappearance of the growth by maintaining uterine contraction, promoting its absorption by mechanical pressure. Hildebrandt ('Berl. Klin. Woch.,' 1872) expresses a similar opinion of the action of ergotin injected subcutaneously, the nutrition of the fibroid being interfered with by the increased compression. The medical treatment of fibroid tumours of the uterus beyond surgical interference is the subject of remarks by various observers ('Brit. Med. Journ.,' April, 1871).

Dr. McClintock described to the Dublin Obstetrical Society in February, 1872, a method of removing uterine polypi by means of a loop of twisted, silken, fishing line attached to a Gooch's double cannula. The ligature having been carefully adjusted, the instrument is slipped up the tumour and the ligature drawn tight. The cannulæ being held in position, the ligature is drawn firmly to and fro, and the neck of the tumour is soon cut through. He believes that hemp-saw is adequate to cut through the structure of any vaginal or uterine tumour requiring extirpation, and that it is more easily and with more certainty applied round the neck of such a tumour than a wire ligature is.

Mr. Bryant details a case of complete extirpation of the uterus and ovaries for fibro-cystic disease. The broad ligaments were securely separated, and the uterus at its neck was ligatured in halves. A

strong clamp was put on, which sloughed off on the fourteenth day. The tumour weighed eight and a half pounds. Recovery was uninterrupted. ('Obstet. Trans.,' 1872.)

Dr. W. F. Atlee relates a case of fibrocystic disease of the uterus, believed to be ovarian, which was subjected to operation. The mass weighed five pounds. The patient recovered. The uterine cavity was not lengthened. ('Amer. Journ. of Med. Sci.,' July, 1871.)

Dr. Lloyd Roberts records the successful removal of a fibrocystic tumour of the uterus, supposed before operation to be an ovarian tumour. No increase in length of uterus. Tumour weighed twenty-three pounds. ('Obstet. Trans.,' 1871.)

Gayet quotes a case of cystic myoma of the uterus mistaken for an ovarian tumour, in which, before the operation, the tumour was tapped and several quarts of a transparent yellowish fluid were withdrawn. ('Lyon Méd.,' March, 1872).

Mr. Spencer Wells, in some remarks on the differential diagnosis of uterine from ovarian tumours ('Med.-Chir. Trans.,' liv) states that there are more than a hundred cases on record where the abdomen has been opened with the object of removing an ovarian tumour, but the operator discovered that the tumour was not ovarian, but uterine. Visible enlargement of the abdomen is more often *general* in cases of ovarian tumours, and *partial* in uterine tumours, being confined to the lower part of the abdomen until a very large size has been attained. The depression of the umbilicus is diminished, or the umbilicus may become prominent in large ovarian cysts. This is rarely seen in uterine tumours unless fluid is also present in the peritoneal cavity. Enlargement of the superficial veins of the abdominal wall is more common in uterine than in ovarian tumours of moderate size. Nearly all uterine tumours, though visibly moving above, seem to be fixed below in the hypogastric region. Very great proportionate increase of the space from the pubes to the umbilicus is more common in uterine than in ovarian tumours. As a rule, the fluid portion preponderates in an ovarian tumour, the solid in a uterine tumour. The mobility of ovarian tumours is generally greater from below upwards than that of uterine tumours. Vascular murmurs are common in uterine, very rare in ovarian, tumours. The diagnosis is much aided by examining by the vagina and the rectum.

For remarks on the differential diagnosis of fibrocystic disease of the uterus and ovarian tumours see also Lee ('New York Journal,' Nov. 1871), Beatty ('Brit. Med. Journ.,' Nov. 1871), and discussion at Obstetrical Society ('Obst. Trans.,' March, 1872).

Dr. Snow Beck furnishes a careful microscopical account of *the structure of the uterus* ('Obstet. Trans.,' 1871). It is made up of fusiform fibre-cells, which form striæ, bands, or layers, having in the unimpregnated organ a small amount of amorphous transparent tissue surrounding each fibre-cell, and of oval or round corpuscles and minute molecules or granules imbedded in a considerable amount of transparent amorphous tissue, and constituting what he terms the soft tissue of the uterus. The internal surface is composed entirely of soft tissue, and this has the utricular glands imbedded in it. The soft

tissue also penetrates into the walls of the uterus, and is met with in decreasing amount towards the outer surface. It will thus be seen that Dr. Beck does not admit the existence of a defined mucous membrane on the inner surface.

Uterine Cancer.

Spiegelberg writes ('Arch. f. Gynäk.,' iii, 2, 1872) on the diagnosis of the first stage of cancer of the neck of the womb. He says that the hardness and unyielding character of malignant deposit, as compared with the firm and rough consistence of benign induration, is well known, but he relies on two other signs which may be briefly described as follows:—In malignant degeneration the overlying mucous membrane is always immovable, firmly connected with the underlying tissue, which is not the case in simple hyperplastic induration; and while the latter, under the pressure of a sponge-tent in the cervix, dilates regularly and becomes looser, softer, and thinner, the cancerous infiltration continues unaltered, firm, and hard, and does not become stretched. Spiegelberg is not in favour of operative interference when the disease is far advanced.

Dr. Madge, after a careful examination, reported that a specimen exhibited by Dr. Protheroe Smith before the Obstetrical Society was one of epithelial cancer of the lining membrane of the body of the uterus, which destroyed portions of the uterine substance without affecting the cervix. The bulging masses noticed on the inner surface were made up of a variety of elements, minutes granules, oil-globules, epithelial cells, and other cells of an irregular and nondescript character, with a little earthy matter, all contained in a stroma of connective tissue. ('Obstet. Trans.,' 1872.)

Dr. Henry Bennett records a case, very obscure as regards the diagnosis during life, of malignant disease of the body of the uterus. The patient was fifty years of age, had ceased to menstruate for two years, and a uterine tumour was casually discovered by the hand on the hypogastric region. The uterus was enlarged to about the size of four months' pregnancy, perfectly free from adhesions, movable in every direction; there was no vaginal discharge. The sound passed four inches. In forty-eight hours after this she was seized with peritonitis and died. A large encephaloid cancerous tumour was found in the uterine cavity. ('Brit. Med. Journ.,' Sept. 1872.)

Arpem, in 'L'Impartiale' of Florence, publishes a case which, if the diagnosis be correct, shows the marked influence of gastric juice on uterine cancer. The patient was fifty-eight years old, with malignant disease of the rectum and of the neck of the uterus. After stopping the hæmorrhage by the perchloride of iron, seven drachms of artificial gastric juice was divided into three parts and used locally every day for three weeks. Ultimately the ulcers were completely healed by it.

Dr. Routh writes ('Brit. Med. Journ.,' Aug. 1872) in favour of gastric juice for uterine cancer. The effects which he has observed to be produced by the juice on cancerous sores have been solution of sloughs,

solution of the granular projections of the growths themselves, and absorption and disappearance of glandular enlargements beyond the seat of growth. Its action is rapid. Routh refers to some successful cases by Lusana and Pagello in Italy.

Professor Simpson writes in favour of the removal of portions of the diseased tissues in cases of cancer of the uterus. Even in cases in which the whole disease cannot be removed the ablation of only a portion of the diseased tissue diminishes the hæmorrhage and the discharge, relieves the pain, and thus prolongs life. Where the disease is sessile, and not capable of removal by the écraseur, it must be dug or scraped out by means of the finger-nail, a Recamier's curette, or Simon's scoop. He thinks a saturated solution of the chlorate of potash a good application to the remaining stump. ('Brit. Med. Journ.,' Oct. 1872.) Remarks by various authors on the treatment of uterine cancer by scraping away the diseased tissue and by gastric juice are contained in the same journal for Aug. 24th, 1872.

Dr. Barnes quotes ('Brit. Med. Journ.,' July, 1871) a case of cancer of the female genitalia in which sudden death occurred. Nothing like embolism or thrombosis was found after death. The glands and subperitoneal tissue in the lumbar region were involved in dense masses of cancerous tissue; the aorta and the vena cava ran like tunnels through the solid cancerous mass, which extended from the pelvis to the diaphragm, and the aorta had, in many places, its coats bent inwards, forming nodular projections into its cavity. The aorta was thus no longer an elastic tube expanding under the heart's systole and then contracting, but a rigid tunnel utterly wanting in resiliency. Such an aorta is mechanically unfitted to do its work, and under moderately increased exertion or emotion, causing unusual action in the heart, this rigid tube would throw back upon the heart a portion of the column of blood which the aorta ought to receive and propel. This retrograde dynamic disturbance would overwhelm the feeble heart, and thus death would follow.

Tuberculosis of the female genitalia is illustrated by a case reported by Lehnerdt, and another case by Wernick, thirty-three days after labour, in which the disease was confined to the Fallopian tubes. ('Beitr. zur Geb. u. Gynäk.,' Berlin, 1872.)

Displacements of the Uterus.

In a paper read before the Obstetrical Society, Nov. 1871, Dr. Konrad discusses the etiology of prolapse of the female genitalia. He believes, with Spiegelberg, that prolapse of the vagina is the most important feature in any prolapse of the female genitals. The anterior wall descends most commonly, and in the large majority of cases prolapse of the uterus is a sequel of this. He describes Spiegelberg's operation for the radical cure, which combines Dieffenbach's method with a modification of Simon's colpokleisis. The cervix uteri, if greatly hypertrophied, is first removed by the galvanic wire.

Dr. Duncan ('Edin. Med. Jour.,' Jan. 1872) believes that the causes leading to procidentia are purely mechanical. In all chronic cases

they have been long acting, gradually elongating the attachments, and stretching and elongating the organs themselves, or parts of them. The pelvic viscera descend either from the retaining forces being diminished or the expelling forces being predominant. That which is most easily displaced will descend first, and the rest will follow in the exact order and in the exact duration of the facility with which they may be depressed.

Dr. Duncan, in a paper on the functions of the perinæum in procidentia uteri ('Edin. Med. Journ.,' Feb. 1871), believes that the perinæum has nothing to do with the maintainance of the uterus in its natural position, and that laceration of it has no causative influence in the production of procidentia. There can be no doubt, however, that laceration of the perinæum favours or accelerates the occurrence of procidentia. It abbreviates the latter part of the path which the uterus travels in its descent. It abets the causes which produce prolapsus by removing difficulties which otherwise would have to be overcome. These difficulties lie not only in the length and resistance of the perinæum, but also in the smallness and tightness of the vaginal orifice. Restoration of the perinæum does not remove any cause of prolapsus or procidentia. It is restored in order that it may resist the progress of the descending uterus. This opposing power of the perinæum may be increased by the pressure of the pad of a T bandage.

Dr. Squarey writes ('Obst. Trans.,' 1872), on the causation of acquired flexions of the uterus. His object is to explain why in two cases, the same causes and conditions apparently existing, an anteflexion is found in the one case, a retroflexion in the other. He points out that in whatever plane of the pelvis the uterus is situated, its axis is invariably at right angles to that plane, and he believes that the direction the fundus uteri takes in a flexion depends on the situation of the uterus in the pelvis at the time that the cause producing it comes into action. When an anteflexion is produced, the uterus is high up, the axis being forward, and any force striking it from above would impinge on the posterior and upper surface of the fundus, and so force it forward, producing anteflexion. When retroflexion is produced the uterus has from some cause sunk more or less deeply into the pelvis, and has its axis directed more or less backward, so that any force striking it from above would impinge on the anterior and upper surface of the fundus.

Dr. Rasch writes ('Obst. Trans.,' 1871) on a novel method of using the uterine sound for redressing a flexed uterus. The sound introduced into the retroflexed uterus should first be used as a lever to lift up the organ; then, instead of twisting the handle round, the part in the uterus and its ideal prolongation are made the centre of motion, round which the handle and stem sweep in a large circle. The movement is well illustrated by grasping the curved part of the sound in one's hand and swinging the handle round as it will go. By the above method the irritation which results from making a large semicircle of motion in the uterine cavity is avoided.

The mechanical treatment of displacements of the unimpregnated uterus is fully described by Pepper ('Amer. Journ. of Obstet.,' 1871)

Dr. Barnes furnishes ('Brit. Med. Journ.,' Sept. 1871) an accurate description of the anatomical conditions connected with hypertrophic elongation of the cervix uteri. The whole pelvis and its contents in such a case were removed after death, and a vertical section was made in the median line. The entire length of the uterus was about seven inches. The fundus and body were somewhat lower in the pelvis than natural; the body had undergone apparently very little elongation. The two lips of the os uteri were much hypertrophied and somewhat everted; they formed a mass covered by the everted vagina outside the vulva. The base of the bladder was carried down along with the down-growing interior wall of the cervix uteri, forming a sacculated pouch below the level of the urethra, and, therefore, below the symphysis pubis. The urethra was also distorted into a curve, of which the convexity looked upwards, the bladder end of it being carried downwards along with the base. The peritoneum, descending behind the abdominal wall, was reflected upwards over the bladder (the cavity of which was enormously enlarged) at a point about two inches above the symphysis pubis. It descended behind the bladder quite down to a point on a level with the sacculated pouch of the bladder, that is, below the level of the lower margin of the symphysis pubis. Rising over the fundus uteri, the membrane descended behind, forming a Douglas's pouch quite below the vulva. Dr. Barnes points out that it would not have been possible to remove more than a portion of the os without opening the retro-uterine pouch. The specimen also explained the difficulty commonly encountered in keeping the protruded parts inside the pelvis by pessaries. No folds of intestine descended between the pelvic viscera in the anterior or the posterior peritoneal pouch.

Barnes also writes ('St. Thomas's Hosp. Rep.,' 1871) on "the hypertrophic polypus of the os uteri, and its relation to hypertrophy of the cervix uteri." Cervical hypertrophy is known frequently to pursue a very uniform course, affecting the whole structure of the cervix alike; but sometimes one lip, and sometimes even a part of one lip, is more especially affected. A small lobe continues to grow under the same stimulus that determines the general hypertrophy. It grows a little more quickly, then its base, being compressed by the firm structure of the os on either side of it, is squeezed and elongated until it assumes the characteristic polypoid shape. The structure of these hypertrophic polypi entirely accords with this theory of their formation. They are generally small, but sometimes as large as a cherry; commonly single, but it is not infrequent to find two or three, and some show a tendency to lobulation.

Diseases of the Vagina.

Winckel gives ('Arch. f. Gynäk.,' ii, 3, 1871) an analysis of fifty cases of vaginal cysts, including four under his own care. The cysts may be divided into three kinds:—(1) mucous cysts, originating either in open or closed follicles; (2) interstitial, submucous, or placed in the fibro-muscular layer; and (3) sub-serous, situated above, in the peri-vaginal connective tissue underneath the peritoneum, below,

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between the vagina and the rectum. The chief causes of the follicular cysts are catarrh, inflammation of the vagina, and the physiological hyperæmia which it undergoes during pregnancy; while the deeper cysts, both interstitial and subserous, generally result from compression and bruising of the vaginal wall, and the effusion of blood into its tissue, the result of a preceding labour. The cysts are generally slow in their growth; in some recorded cases they attained to the size of a hen's egg in seven or eight years. The medium-sized and small ones generally cause but little inconvenience. Winckel treated and cured his cases by simple incision. The other methods of treatment recommended are the excision of a portion of the cyst wall and the subsequent application of caustic, puncture and injection of iodine, removal by the écraseur, and the use of a seton.

Vaginal stenosis is illustrated by Ebell, who relates a case of great contraction in the upper third after cholera, and by Martin, who records two cases. ('Beitr. zur Geb. u. Gynäk.,' Berlin, 1872.)

Guéneau de Mussy writes on hyperæsthesia of the vulva and vaginismus. He disapproves entirely of Sims' method, and believes that medical means combined, if necessary, with dilatation render deep incisions altogether unnecessary. He has obtained good results from vaginal suppositories of bromide of potash and belladonna, and subcutaneous injection of morphia and atropia. When the vaginismus is accompanied by itching he gives also some arseniate of soda. ('Lyon Médical,' 1871.)

Stoltz writes ('Gaz. Méd. de Strasbourg.,' 16, 1871) on hyperæsthesia and spasmodic contraction of the vaginal sphincter, with or without fissure. Vaginismus is also treated of by Scharlau. ('Beitr. zu. Geb. und Gynäk.,' p. 64, 1872.) On vaginal neurosis. Ferber ('Berl. Klin. Woch.,' viii, 15, 1871).

Dr. Byrne related to the Dublin Obstetrical Society a case of tumour of the vagina. The patient was thirty-six years of age, the mother of four children. The tumour was firm, about the size of a hen's egg, pale in colour, quite movable. It was attached to the posterior wall of the vagina, and appeared to be folded up in a large loose fold of the mucous membrane. A V-shaped incision through the mucous membrane having been made, the tumour was carefully dissected out of the cellular tissue in which it lay. The tumour was lost, and so its microscopical characters were not ascertained. ('Dublin Quart. Journ.,' May, 1871.)

Dr. Barnes removed a fibroma, the size of a large orange, from the anterior wall of the vagina. Its attachment began just at the meatus urinarius, extending along the anterior vaginal wall, but leaving a space of an inch quite clear below the os uteri. ('Obst. Trans.,' 1872.)

Mr. Lawson Tait figures ('Med. Times and Gaz.,' March, 1871) two needles, suitable for use in operations for vaginal fistulæ. One needle is the ordinary tubular one of Simpson, which, in making a stitch, Mr. Tait always introduces first by the left hand. He then makes traction on the wire so as to lift its loop up from the [illegible] needle, and introducing the other needle through the [illegible] the first, the wire is easily caught in its notch and the

The absolute certainty which the two needles give of the points of insertion for each stitch being exactly opposite is a great recommendation for their use.

Chrschtschonovitch writes on *the termination of nerves in the vagina.* The mucous membrane contains numerous branched cells, resembling connective tissue corpuscles, arranged just beneath the laminated pavement epithelium with almost the same regularity as in the cornea, while others are scattered irregularly through the membrane. The nerves penetrating through the muscular layer to the mucous membrane consist of large bundles of medullated fibres, which here and there contain groups of ganglion cells. From these, smaller trunks are given off, still medullated, which enter the proper mucosa or rete Malpighii; as these pass towards the surface the medullary sheath is gradually lost, and the fibres either bend back or join with a fibril from a neighbouring trunk, forming a very superficial plexus, or apply themselves to the wall of one of the small vessels, ascending to supply the papillæ of the membrane. Some few of them, destitute of medullary sheath, may be seen ascending between the epithelial cells; but the author agrees with Hensen and Klein in stating that the nerves do not join with the branched connective corpuscles. The smooth muscular fibre fasciculi of the membrane are surrounded by a very rich plexus of non-medullated nerve-fibres, from which individual fibres are given off that exhibit here and there granule-like enlargements, and penetrate between the several muscle cells. He thinks it probable that these last are encircled by the ultimate fibrils. Following the branches given off to the epithelium from the sub-epithelial non-medullated plexus, he finds that they break up in the deeper layers into a plexus of fibres encircling the epithelial cells, amongst which are large branched corpuscles. ('Lancet,' Nov. 1871.)

Diseases of the Ovaries.

Professor Waldeyer describes (Archiv f. Gynäk., ii, 3, 1871) a diffuse fibroid of the ovary of peculiar structure. The tumour measured 15 cm. in length, 11 in breadth, and 10 in thickness, and weighed 910 grammes; and had the shape of a greatly enlarged ovary. There was on the surface one cyst nearly the size of an apple, and two small, transparent cysts, the size of peas. The consistence of the mass was unusually hard, so that there was a difficulty in making a section of it. It had a close resemblance to closely meshed spongy bone, or an osteoid tumour. Waldeyer then describes its microscopical characters, and states that it wanted only the characteristic grouping of the cells at the epithelial like margins of the trabeculæ, and the firm, throughout homogeneous state of the trabecular substance itself, to render the resemblance between it and an osteoid tumour complete, both macroscopically and microscopically. The cystic cavities showed on their inner surface a short cylindrical epithelium.

Scaglia writes on the different forms of ovaritis ('Gaz. des Hôp.,' Feb., 1871), and hat etiologically there exist several species, such a rheumatic, traumatic, menstrual, very acute, the acute, and the

chronic. From a clinical point of view we cannot recognise the division into follicular, parenchymatous, and peritoneal. Slavjansky contributes an article on the same subject. ('Arch. f. Gynäk.,' iii, 2, 1872.) See also Matthews Duncan. ('Edin. Med. Journ.,' Sept. 1871.)

Dr. Edis relates a case of abscess of the ovary in a girl æt. 12. The right ovary was found to be distended to the size of an orange, its walls were much thickened and covered internally by flaky purulent lymph; the posterior surface had given way, allowing the matter to escape into the peritoneal cavity. There was also general chronic peritonitis. ('Obst. Trans.' 1871).

Professor Gaillard Thomas records ('Amer. Journ. of Obstetrics,' 1871) five cases of *malignant disease of the ovaries*. He concludes that the circumstances which most prominently point to the existence of the disease are:—(1) The rapid development of a solid tumour in an ovary, with marked depreciation of the strength, vital forces, spirits, and general condition of the patient. (2) The occurrence of œdema pedum and spanæmia at an early period, and consequently dependent upon a general blood state, and not the consequence of pressure by the tumour. (3) Lancinating and burning pains through the tumour. (4) Cachectic appearance. (5) The occurrence of ascites without evidences of hepatic, renal, or cardiac disease, or of chronic peritonitis; the fluid accumulating in such large amounts as to force aside the supernatant intestines and produce dulness in place of resonance on percussion in dorsal decubitus.

Dr. Brown records a case of solid cancer of the ovary. The tumour weighed nineteen pounds. On section it was found to be tough and fibrous in structure, and to have in its interior a few small cavities containing a purulent-looking fluid. The microscopical appearances closely resembled those found in many scirrhous cancers of the breast. ('Amer. Journ. of Obst.,' May, 1872.)

Dr. Parry writes an interesting article on sudden enlargements of, and hæmorrhage into, ovarian cysts. ('Amer. Journ. of Obst.,' Nov. 1871.)

Palm relates twenty-five cases of ovarian cysts in which from excessive distension of the cyst wall, or from some traumatic cause, rupture of the cyst occurred. Seven of the cases were cured, five after the first, two after repeated rupture. Eighteen died; three from collapse, six from acute peritonitis, three from chronic peritonitis, and six from dropsy and marasmus. ('Württ. Medic. Corresp.,' 37, 1871.)

Dr. J. J. Phillips points out ('Obst. Trans.,' 1872) one source of danger in treating suppurating ovarian cysts by drainage. The contraction of the main cyst makes such traction upon any adhesions there may be around a secondary cyst that rupture of the latter may take place. A case is given in illustration, and as the contents of the ruptured cyst were purulent fatal peritonitis occurred.

Ovariotomy.

Mr. Spencer Wells has lately ('Med.-Chir. Soc.,' Nov. 1872) completed the analysis of 500 cases of ovariotomy performed by him.

25 cases both ovaries were removed at one operation, and there were four cases where ovariotomy was performed twice on the same patient. The subsequent history of patients who recovered after removal of one ovary proved that they might menstruate regularly, and might bear children of both sexes, or twins; and that after removal of both ovaries they did not become excessively fat, nor lose their feminine appearance or sexual instinct. Of 373 women who recovered, 36 who were unmarried at the time of the operation had married since; of these 15 had had one child, 6 two children, 3 three, 3 four children, and 2 had had twins. Of 259 who were married when the operation was performed, many being beyond the age of child-bearing, 23 had had one or more children since. Seventeen had died of causes more or less directly connected, and 19 of causes not at all connected, with ovarian disease or the operation, at various periods from a few weeks to eight years after ovariotomy. Mr. Wells stated that unilocular cysts often disappeared after a simple tapping. They were frequently not ovarian at all, but connected with the parovarium or the broad ligament. His views as to early operation had become modified from those which he at first held. He had found that the results of operations on small tumours in healthy women were not so favorable as in cases where the cysts were large, and the patients had become accustomed to disease. He did not think it right to remove small ovarian tumours, unless they caused great pain and inconvenience to the patient. ('Brit. Med. Journ.,' Dec. 1872.)

Keith communicates ('Lancet,' Nov. 1872) a third series of fifty cases of ovariotomy. Of the last hundred cases operated on by Keith there have been eighty-four recoveries. There were only eight deaths in the fifty cases now recorded; two died from obstructed intestine, one from acute septicæmia, and five from peritonitis. Keith now takes perhaps more care than ever during the operation to tie every bleeding point, Lister's animal ligatures being used. Pure, dry, sulphuric ether is always used by him as an anæsthetic.

A tabular statement has been published of the cases of ovariotomy performed by the late Dr. Sköldberg of Stockholm. Out of thirty completed cases twenty-six recovered. An exploratory incision was made in four cases, and one of these died. An operation for the removal of a solid cancerous ovarian tumour was fatal.

Mr. Christopher Heath related to the Clinical Society (Nov. 1871) a case of ovariotomy in which very extensive adhesions to the surrounding structures were found. On enlarging the abdominal incision with scissors in the ordinary way, an empty coil of small intestine, which was closely adherent to the wall, was divided in three quarters of its circumference. Mr. Heath attached the bowel to the skin with silk sutures, forming an artificial anus. The patient made a perfectly good recovery, the use of a belt and an air pad satisfactorily retained all fæcal matter, and she had regular stools.

Dr. Beebe relates five cases of ovariotomy in which he treated the pedicle by simple torsion of its vessels. There was no subsequent hæmorrhage, and each case recovered. ('Amer. Jour. of Med. Sci.,' April, 1871).

Dr. Atlee records seven cases of ovariotomy, and describes a new clamp for the operation. By means of this clamp the pedicle is compressed in the *linear* direction of the wound, and at the same time it limits within certain points the expansion or spreading of the pedicle when the blades are screwed together. (Ibid.)

A new ovariotomy clamp is described by Dr. Dawson ('Amer. Jour. Obst.,' 1871), and a pump for facilitating the operation by Dr. Lente.

Dr. Tracy reports six cases of ovariotomy, five of which were successful ('Austral. Med. Journ.,' Aug. 1871); and a successful case performed during an attack of peritonitis. ('Med. Chir. Soc.,' 1872.)

Dr. B. S. Schultze relates ('Arch. f. Gynäk.,' ii, 3, 1871) four cases, two of which recovered. One of these patients had two children subsequently; the other menstruated through the abdominal wall, and the discharge from the site of the incision often lasted some hours longer than that from the vagina. Martin also contributes seven cases. ('Berl. Klin. Woch.,' March, 1872.)

Dr. G. H. B. Macleod writes ('Lancet,' Jan. 1871) on an improved method of dividing the pedicle in ovariotomy, and describes an instrument of his own construction which he employs to grasp the pedicle firmly near its uterine end. The cyst is then cut away by dividing with a knife the extreme distal end of the pedicle, and the stump is caught by special forceps at a short distance from the part grasped by the instrument above mentioned. By slowly turning the forceps while the first instrument is kept at rest, the stump is twisted off close to the edge of the instrument by which it is held, and may then be returned with safety into the abdominal cavity. Dr. Macleod relates a successful case in which this plan was adopted; the patient was quite recovered about the time the clamp is found to separate in most cases. He says that it is a question for further observation how far the simple grasp of the first instrument, if continued for a short time, might suffice to close the vessels of the pedicle without the torsion. Mr. Jessop relates ('Lancet,' Sept. 1871) two cases in which the pedicle was successfully twisted by the above method.

Dr. Hayes recommends a method for securing the vessels of the pedicle, which he calls "the subperitoneal." The proceeding resembles the subcutaneous ligature of nævus. The pedicle is first compressed by a clamp, and a needle armed with stout catgut ligature is passed beneath a good thickness of the serous surface of the pedicle, but superficial to the principal vessels. The needle being withdrawn at the side opposite the point of entrance is again passed into the aperture of exit, and pushed between the vessels and peritoneal covering on the side of the vessels opposite its first passage, until it can be withdrawn through the opening made by its first entrance. The ends of the ligature are to be strongly tied, and cut off short. ('Dublin Quart. Journ.,' Nov. 1871.)

Fanas relates a successful case of ovariotomy in which a [illegible] neal fibroid of the uterus was removed at the same time. [illegible] July 1871.)

Mr. Lawson Tait has introduced a new form of trocl

ovariotomy. It is claimed that this instrument has the following advantages over those at present in use:—that the penetrating edge cuts, and does not tear, making a wound which the tube completely fills, and it is easily retracted. The cutting point may be used as a knife to slit open smaller cysts contained in the major one, and of which the contents may be so viscid as to be unable to pass along any trochar. The catches adapted to the trochar are such as to obviate any possibility of its slipping. ('Med. Times Gaz.,' Dec. 1872.)

Dr. Goddard relates ('Obst. Trans.,' 1871) a case of ovariotomy performed by Mr. Wells at the third month of pregnancy. Recovery. Labour at term. Living child. Mr. Wells has performed ovariotomy in four cases during pregnancy, each time with a successful result.

Barker performed ovariotomy successfully in the case of a girl æt. six years and eight months. The tumour was tapped and easily extracted. Besides the fluid contents it contained the elements usually found in a dermoid cyst. ('Philad. Med. Times,' 1871.)

Mr. Spencer Wells relates ('Med. Times Gaz.,' Jan. 1872) three cases of suppurating ovarian cysts with a high temperature, which were successfully operated upon, the temperature falling quickly after the removal of the offending cyst.

Peri-uterine conditions, &c.

Dr. Meadows writes on pelvic hæmatocele, especially on its diagnosis and treatment. He relates two cases in which he punctured the tumour; and believes from his own experience and from an analysis of Bernutz' cases that puncturing should be more frequently practised, that this is generally best done by the rectum, but that as a rule it should not be undertaken during the first month after the effusion has taken place. An interesting discussion followed the reading of this paper. ('Obst. Trans.,' 1871.)

Dr. Snow Beck, writing on the source of the hemorrhage in pelvic hæmatoma, believes it to be highly improbable that the blood ever regurgitates from the uterus through the Fallopian tube, as the consequence of some disorder of the menstrual function. There is no post-mortem evidence that this occurs except where there is permanent obstruction to the outward flow of the catamenia and consequent dilatation of the uterus. ('Obst. Trans.,' 1872.)

Delpech records ('Gaz. des Hôp.,' Sep. 1871) a case of phlegmon of the broad ligament, proceeding to suppuration, and causing death by bursting into the peritoneal cavity. The patient was forty years old, never married, and the cause of the phlegmon appeared obscure. The pain first came on suddenly, eight days after the cessation of menstruation.

Dr. Hart narrates ('Amer. of Obstetrics,' 1871) an interesting æt. which at first was mistaken was larger than a hen's egg, nt. in the direction of the needle was introduced,

and three ounces of a clear limpid fluid escaped. The sac was then freely laid open, but no intestine or omentum was found. Two similar cases came under the notice of Dr. Nelson, and in these there existed the same translucency, slow growth, non-reducibility, and freedom from pain.

In a paper on uterine inflammation after the change of life ('Brit. Med. Journ.,' Sept. 1872) Dr. Tilt states that the occasional recurrence after the menopause of inflammation of the sexual mucous membrane may be safely predicted to those who have long suffered from inflammation of the entire womb, when they presume too much on their partly recovered strength. Also that we may safely predict inflammation of the sexual mucous membrane to those who overtax their strength after the menopause, whenever the uterine tissues are teased by the presence of a small interstitial fibroid or a polypus, when the cervix is hypertrophied, and also when the women are cachectic and have always one or more of their mucous membranes in a diseased condition.

In a discussion on uterine injections for chronic metritis at the Société de Médecine of Paris M. Charrier recommended iodine; the perchloride of iron, he said, gave rise to excessive pain. Gallard spoke highly of a weak solution of the perchloride. He first injects the uterus with water so as to ascertain its capacity, and afterwards injects a similar quantity of the solution of the perchloride. ('Gaz. des Hôp.,' Feb. 1871).

Professor Spiegelberg contributes ('Arch. f. Gynäk.,' iii, 2, 1872) three cases illustrating the value of puncture in the diagnosis of collections of fluid in the abdominal cavity. Having referred to a previous case reported by him where the omission of tapping led to the error of mistaking a hydatid cyst of the kidney for an ovarian tumour, and to an operation and the death of the patient, he quotes:—Case 1.—A woman, æt. 30, two years previously, after so-called abdominal inflammation, noticed a swelling in the left hypogastrium, which increased slowly and steadily, but which gave rise to little annoyance, except to fixed pain in the left side. On admission a cyst occupying the centre part of the lower and middle abdomen; doubtful origin; puncture, evacuation of pus; attempted incision; and rupture of cyst after detachment of neighbouring adhesions; escape of echinococcus membrane; retroperitoneal left-sided hydatid cyst; partial excision, the rest attached to the abdominal wound; recovery by wasting of the sac after long continued suppuration. Case 2.—Æt. 40, sent in for ovariotomy. Puncture of one of the cystic spaces revealed it not to be an ovarian tumour, for the small quantity of dark fluid withdrawn, besides containing many red and white blood-cells, underwent spontaneous coagulation and showed no epithelial elements. The serous character was thus apparent. Death by marasmus and œdema of the lungs. Tumour found to be a large retroperitoneal and mesenteric sarcoma descending into the pelvis, and resembling an ovarian cyst on account of numerous sacculated ascitic spaces and secondary adhesions to the fundus uteri. Case 3.—Æt. 28, with an abdominal tumour, its character doubtful. By tapping a glutinous fluid was withdrawn, which contained besides crystals of cholesterin, numerous cells, a little *débris*,

cells with clear contents, and much remarkably distinct nuclear cylindrical epithelium. This pointed to its ovarian character. Ovariotomy, incomplete on account of numerous adhesions. Death by decomposition of cyst. Spiegelberg concludes that although diagnostic puncture does not always give positive information as to the origin of the fluid, yet that when it does the result is conclusive as compared with the doubtful physical examination.

II. PREGNANCY.

Physiology and Pathology of the Ovum.

Dr. Livius Fürst writes ('Arch. f. Gynäk.,' ii, 3) on the amnion in its relation to fœtal malformations. While he admits that compression by the umbilical cord may, in some cases, be the cause of arrest of development of certain portions of the fœtus, he believes that amnial "filamentous adnexa"—under which name he includes thready, stringy and membranous formations—are the most common causes of mechanical interruption to the development of the fœtus. He then discusses the formation of these adnexa; by some they are regarded as plastic adhesions, by others as the result of fœtal inflammation with plastic exudation, but Fürst agrees with the theory which considers them due to arrested formation of the amnion. The inner layer of the amnion, at first in close contact with the fœtus, is gradually separated from it by the liquor amnii; but abnormal adhesion may take place between the epithelial layer of the amnion and the epidermis of the fœtus, and this, by the expansion of the amnion, leads to thready and stringy formations, which may wholly or partly interrupt the development of the extremities. The most frequent cause of this adhesion is the small quantity of liquor amnii, or its late secretion.

In the discussion on a specimen exhibited at the Obstetrical Society of a child whose forearm had undergone amputation in utero, Dr. Barnes said that it was not often strangulation by the umbilical cord that caused these amputations, but by a string of false membranes. He regarded the budding from the stump which is so often found, with the signs of a cicatrix, as proof of amputation in the early stage of development. ('Obst. Trans.,' 1871.)

Dr. Braxton Hicks writes on *the anatomy of the human placenta*, and controverts the Hunterian doctrine. He shows how the injection which Hunter used would almost certainly produce an irruption of blood amongst the villi. The fact of blood being found among the villi after natural expulsion is no evidence in favour of or against a sinus system, because there are then nearly always lacerations and denudations of the decidua serotina. The author argues that if no blood be found among the villi, the placenta being examined *in sitû*, this is conclusive against the existence of the sinus system. Dissect absence of blood under these circumstances are ad 1872.)

Joulin contributes some observations on the laminar membrane of the human placenta, the state of the chorion, and the placental circulation at term, and concludes that at the end of pregnancy the chorion has disappeared as a continuous membrane from the fœtal surface of the placenta, and that the greyish resisting tissue which covers the placenta is not the chorion, but a membrane of new formation, which he calls the laminar membrane. He illustrates the evolution of this membrane by reference to the condition of the placenta at various stages of its development. ('Bulletin de l'Académie de Méd. de Paris,' March, 1872.)

An interesting case of recurrent discharge of fluid from the uterus during pregnancy is recorded by Dr. Dyce Brown ('Brit. Med. Journ.,' May, 1872). The first gush of clear fluid, just tinged with blood, took place at the fourth month, and was repeated almost weekly until the sixth month, when labour came on. The amniotic sac was then felt tense, and required to be ruptured, after which a large quantity of fluid escaped. A similar discharge has occurred in the two subsequent pregnancies of the same patient. Fabbri writes ('Presse Méd.,' xxiii, 29, 1871) on the hydrorrhœa of pregnancy.

Dr. Matthews Duncan writes on long delay of labour after discharge of liquor amnii. He gives an illustrative case, and refers to the researches of Winkler, proving that the amnion has the power of secretion and absorption in a high degree. Firm compression of the fœtus may take place without active uterine contraction, and it is firm compression by active uterine contraction that is incompatible with the continuance of pregnancy. ('Obst. Trans.,' 1872.) Similar cases are also recorded by various writers in the 'British Med. Journ.,' and by Doughty ('Amer. Journ. of Obst.,' May, 1872).

In the 'Gaz. Méd. de Paris,' Oct. 1871, is an account of some peculiar *cysts of the placenta* described by M. Jacquet. He believes that they were developed at the expense of the sheath of the placental vessels, and he calls them perivascular cysts. Jacquet admits four kinds of placental cysts—(1) gelatinous cysts originating in the laminated tissue between the chorion and the amnion; (2) perivascular cysts; (3) sanguineous cysts, from the placental sinuses; and (4) the ordinary cysts of the villi (hydatiniform degeneration).

On calcification of the placenta.—Dr. E. Fränkel gives ('Arch. f. Gynäk.,' ii, 3, 1871) three cases in which a careful examination of the placenta was made; and he concludes that calcification of the placenta most frequently follows the course of the capillaries and small vessels of the villi, though it may be more diffuse and intermediate, and then its origin, according to Langhans, is from the epithelial layer of the villous trunks. Most commonly capillary incrustation proceeds from the vessel wall, spreads through at all points, and forms, as it were, a coating for the cavity of the vessel, without as yet rendering the vessel impervious. It usually, though not always, begins at the extremities of the villi, and may also show itself at separate points in the trunks. Diffuse, not too extensive, calcification is without influence on the support of the fœtus, while, indeed, a less extensive capillary petrification, especially in the earlier months of pregnancy, interferes with the fœtal

blood and gaseous interchange, and thus may lead primarily to the death of the fœtus. Calcification of a mature placenta with a living child is only an indication of completed intrauterine growth; and from a similar point of view is to be regarded as secondary calcification, noticed when the fœtus is from other causes dead and macerated.

Ahlfeld, of Leipzig, writes on *the determination of the size and the age of the child before labour.* The attempt is made by Ahlfeld to determine the size of the fœtus for two reasons; firstly, in order to ascertain the period of gestation, and, secondly, to make out before labour if any disproportion exist between the fœtus and the genital passages. To arrive at the first point attention is paid to the woman's statements, the height of the uterus, the development of the abdomen, the condition of the inferior segment of the vaginal portion of the cervix uteri, and the state of the external genitals. To ascertain the second point particular attention is paid to the size of the head, the hardness of the bones which form it, and the condition of the sutures and fontanelles. The uterine contents determine the form of the uterus, so that in the middle of pregnancy, when the fœtus forms the principal part of the ovum, the form of the uterine walls is moulded to the position and attitude of the fœtus. There thus results an ovoid, the two poles of which are constituted by the head and the breech, and the separation of these two gives the length of the fœtal axis, and this is always about half the entire length of the child. Having placed the woman on her back, with the thighs flexed, if the long axis of the uterus be from above downward, the position of the fundus uteri is marked on the abdomen, and then one arm of Baudelocque's pelvimeter is guided by the finger along the vagina to the occiput of the child; the length from head to breech is thus ascertained, and by doubling this we have the entire length of the child. If the long axis of the uterus be transverse, the position of the head and the breech is marked, and the distance between them measured. The author has collected in eight tables the results of measurements made in 250 cases, and at the same time the estimation of the weight of the fœtus. In the fortieth week the greatest length is estimated at 55 centimètres, the shortest at 48; in the thirty-ninth week, 56 and 46 centimètres; in the thirty-eighth, 60 and 44; in the thirty-seventh, 54·4 and 40. The second table proves the truth of the statement already made, that the entire length of the child is about double that of the fœtal axis. The third table gives the results of measurements made in the intervals of uterine contractions; the fourth, of those made during uterine action. The fifth gives an account of the measurements in transverse and oblique positions, and the sixth the relation which exists between the length of the newborn child and the two transverse diameters of the head. The seventh table gives the height of the uterus in each week of pregnancy, and the last table the relation between the height of the uterus and the length of the intra-uterine fœtal axis, and the length of the newborn child. The increase in the size of the uterus is about half a centimètre a week, at least, in the last third of pregnancy. The height of the uterus continually increases to the end of pregnancy, although it is

generally said that the uterus descends in the last month. ('Schmidt's Jahrbücher,' B. clii, H. 1.)

Dr. Hutton states ('New York Med. Journ.,' July, 1872) that he has been able to predict the sex of the child in utero in seven cases, without a failure, by auscultation. When the fœtal pulsations number 144 per minute the child is a female; 124 per minute, a male. A variation of six beats per minute, from 124 upward and from 144 downward, will not endanger the diagnosis, provided auscultation be practised in the ninth month of pregnancy. Of fifty-seven cases examined by Steinbach he was correct in forty-five, and Frankenhausen was correct in all the fifty cases which he examined with a view to determine the sex of the child.

Dr. Brunton relates a case ('Obstet. Trans.,' 1871) in which the entire ovum was expelled at the seventh month, and although at least fifteen minutes elapsed before the membranes were opened, yet the child was rescued alive. Dr. Heywood Smith did not see why the child should *not* have been alive. It was not in the condition of a child born with the stimulus of the external air producing inspiratory effort, and so incurring the danger of drowning, but in this case, with the exception of slight loss of heat, the child was in a natural condition, its circulation continued as if it had been still in utero, with the substitution merely of aëration by the atmosphere, acting directly upon the uterine aspect of the placenta, for the maternal blood. Dr. Grigg said the practical lesson from the case was to take care, should the placenta be expelled before the birth of the child, to expose its uterine surface to the air.

Conception under unusual circumstances. — Dr. R. Olshausen relates ('Arch. f. Gynak.,' ii, 2, 1871) two cases in which conception occurred while each of the patients was wearing an intra-uterine stem. The first case was that of a woman who, since her last confinement, had suffered from menorrhagia and anteflexion of the uterus, for which an intra-uterine stem pessary was introduced on the 28th of June. She menstruated for the last time on the 6th of December, and was delivered of a strong boy on the 25th of September. The instrument was removed on the 15th of January, conception having probably occurred about the 19th of December. The second patient had suffered from perimetritis after her last labour, and had anteflexion of the uterus, for which she wore an intra-uterine stem. Menstruation was regular and profuse; the last period was on the 8th of September. The pessary was removed on the 18th of October, and she was confined of a girl, weighing 4 kilog., on the 24th of June. The ovum and the instrument were probably twenty days together in the uterus in this case. The pessaries were made of hard caoutchouc, with a globular head.

Diseases of Pregnancy.

Dr. R. Kaltenbach writes an elaborate article on albuminuria and diseases of the urinary organs in the child-bearing period ('Arch. f. Gynäk.,' iii, 1, 1871). He relates cases as proofs of each proposition which he lays down, and sums up his researches in the following con-

clusions. During pregnancy albuminuria may supervene (1) in consequence of vesical catarrh, which occasionally results from pressure on the urethra and the neck of the bladder; (2) from general catarrh of the urinary passages, with pyelitis; (3) in consequence of congestion of the renal vessels; and (4) from parenchymatous diseases of the kidneys. In the puerperal state albuminuria may result (1) from vesical catarrh, brought on by the mechanical irritation of a catheter, or by the extension of the inflammatory process from the genital organs to the bladder, or by severe labour; (2) from general catarrh of the urinary passages, with pyelitis, arising from a simple extension of a primary catarrh of the bladder, or from contiguity to inflamed parts, while sometimes pyelitis may supervene as an independent idiopathic affection; (3) from congestion of the renal vessels as in uncompensated insufficiency of the valves of the heart; and (4) from textural disease of the kidneys, which may appear as a primary parenchymatous nephritis, or be secondary to the extension of inflammation from the bladder, or result from pressure on the ureter, or be the metastatic inflammation of pyæmia. Physiological albuminuria does not exist either during pregnancy or in the puerperal state.

Dr. Hermann Lebert, of Breslau, relates three cases, intended as a contribution to our knowledge of the causation of heart disease and disease of the vessels in connection with child-bearing:

Case 1.—Acute articular rheumatism at the fourth month of pregnancy, symptoms of mitral endocarditis, repeated rigors, indications of embolism in the left lower and the right upper extremity, abortion, death from œdema of the lungs. Endocarditis with ulcerative destruction of the bicuspid valve, embolic obstruction of the subclavian artery, of the termination of the aorta, and of the first part of each iliac artery. The uterus was full of blood-clot, but no pathological change existed in its walls. Case 2.—Severe puerperal fever, great dyspnœa, with abundant rhonchi and a bellows murmur in the vicinity of the tricuspid valve. On opening the body there was found purulent inflammation of the tricuspid, a large embolism in the right portion of the pulmonary artery, with purulent inflammation of the same. The inner surface of the uterus showed a well-marked uniform injection of its vessels, with everywhere a rather thick epithelial layer. The organ was twice the size it should be at the fifth week after labour, but its structure appeared normal. There was inflammation of the right spermatic vein. Case 3.—Abortion at the sixth month, periovaritis, pleurisy, swelling of right knee and left elbow; death on the twenty-fourth day. Embolism in the pulmonary artery, double pleurisy, gangrene of the lower lobe of right lung, thrombus of vena cava inferior, obstruction of the left renal vein, periovaritis, periuterine purulent phlebitis, and endometritis. ('Arch. f. Gynäk.,' iii, 1, 1871.)

Dr. A. Gusserow relates ('Arch. f. Gynäk.,' ii, 2, 1871) five very interesting cases of a high degree of anæmia in pregnant women. The character of the symptoms and the cause of the disease were strikingly alike in all. The age of the patients varied from twenty-four to thirty-six; they had previously enjoyed good health, and four of them had been before pregnant. Slowly, in the course of pregnancy, and with-

out any apparent cause, there supervened such severe anæmia and hydræmia, that towards the eighth month the fœtus was expelled, and each patient died soon after. In none of the organs could be found any marked change except the appearances of extreme anæmia and hydræmia and their consequences. The brain and its membranes were very anæmic. The slight fatty degeneration observed (though not in all the cases) in the substance of the heart and in the abdominal viscera was, he believes, simply the result of the blood-change, and not the primary cause. The alterations which are known to occur in the blood during pregnancy seem, in these cases, to have been carried so far as to become a pathological condition. Gusserow recommends, in similar cases, that abortion should be induced, or at least, as early as possible, premature labour. Transfusion may be necessary.

Matton, of Bouzonville, writes ('Journ. de Bruxelles,' May and June, 1872) on pneumonia during pregnancy and on puerperal fever. In the first place the author considers the modifications which pregnancy induces in the blood. These consist in an increase of the fibrine and the water, and a diminution of the corpuscles and the albumen; thus pregnancy predisposes to inflammations. If the amount of fibrine exceed certain limits, we have, succeeding to the inflammatory, the purulent diathesis, and if it is the watery part which is increased beyond measure, we have in addition a serous cachexia. According to Andral during the first six months of pregnancy the amount of fibrine is diminished, and is met with in increased quantity only after the sixth month. Matton then quotes thirty-eight cases of pneumonia during pregnancy, and states that nineteen cases out of twenty recovered when the pregnancy was not interrupted in its course, but only nine out of eighteen got well when labour supervened. For him puerperal fever is the combined result of an essential fever of internal origin, due to the condition of the blood and other ill-understood causes, and a local phlegmasia.

Spiegelberg writes on the complication of pregnancy with chronic heart disease. ('Archiv. f. Gynäk.,' ii, 2, 1871.)

Complications and Accidents of Pregnancy.

Dr. Madge reports ('Brit. Med. Journ.,' Dec. 1871) a case of paralysis during pregnancy. At an early period in the pregnancy the patient complained of severe pain in the hands and feet, which soon became excessively sensitive and painful. In a few weeks this hyperæsthesia was succeeded by anæsthesia, and there was also loss of motion. Small doses of ergot of rye were taken for several weeks without any perceptible benefit; this was ordered on account of its contractile effects on the smaller vessels, thus lessening congestion, which it is believed existed in this case in the grey matter of the chord. Faradisation was then used, and sensation returned in two months, but motion not until later. A dead fœtus, of about four months, of a dark muddy colour, and surrounded by muddy liquor amnii was ultimately expelled. The patient made a good recovery.

Dr. Playfair points out ('Obst. Trans.,' xiii) that some cases of

irritable bladder in the latter months of pregnancy are due to an oblique or transverse position of the fœtus in utero. He relates three cases in which this troublesome symptom disappeared after rectification of the child's position by external manipulation. Dr. Hicks suggests that this results from the disturbance to the form of the bladder by the altered form of the uterus.

In the 'Gaz. Méd. de Paris,' Feb. 1871, Dr. Zagiel relates a case of pregnancy complicated with cystic disease of the left ovary. Labour terminated successfully for both mother and child. Dr. R. P. Harris records ('Amer. Journ. of Obst.,' 1871) a case of ovarian dropsy of fifty years duration. The patient was three times pregnant during its existence, and each labour had a successful issue to both mother and child. Two cases of ovarian tumour coexistent with pregnancy are also to be seen recorded in the 'Amer. Journ. of Med. Sci.,' July, 1871, p. 291 and p. 295. A case of ovarian cystic disease with pregnancy coexisting is also mentioned by Depaul ('Lancet,' July, 1871, p. 165). The cyst was tapped, and no refilling took place after the patient's confinement. He thinks it a question worthy of notice whether the pressure of the developing uterus had a great share in effecting a cure in the case. The 'Archives Générales,' January to March, 1871, contain articles by Dumaivon on pregnancy, labour, and child-bed, complicated with ovarian cysts.

A girl, æt. 16, was admitted into St. Bartholomew's Hospital with retention of urine at the fourth month of pregnancy. She was seized with sudden abdominal pain and died. A post-mortem examination revealed the fundus of the bladder, the cæcum, the lower part of the small intestine, the fundus of the uterus, the sigmoid flexure, and the extremity of the omentum to be all matted together by very old adhesions. A little recent lymph was spread over the rest of the peritoneum. On breaking down the old adhesions a sort of cavity was discovered behind the bladder and above the uterus, which contained a brown turbid liquid. This cavity communicated with the bladder by a sloughy hole in the posterior wall of the latter. The bladder presented large sloughy patches that implicated all its coats. ('Lancet,' May, 1871.)

Funk relates a case of reposition by the fingers of an incarcerated retroverted uterus in two successive pregnancies. The first was successful, the pregnancy proceeding to the full term; in the second, death of the mother succeeded to abortion, gangrene of the bladder and peritonitis. ('Oesterr. Ztschr. f. prakt. Heilk.,' xvii, 26, 1871.)

Dr. Ross relates ('Lancet,' July, 1871) a case of double uterus with concurrent pregnancy. Twins, advanced to between the fifth and sixth months of utero-gestation, were born in July. Menstruation occurred regularly after this, and in four months another child was born at the full term. A careful examination of the uterus afterwards revealed that a vertical septum extended from the fundus to the cervix uteri, completely dividing it into two separate cavities.

A peculiar case of complete prolapse of the gravid uterus at the fourth month in a patient, æt. 20, who had voluntarily half starved herself, and allayed the cravings of hunger by incessantly smoking, and who

then placed a heavy weight on her abdomen, is related by Biggs. ('Western Lancet,' Aug. 1872.)

A case of *exfoliation of the female bladder* is recorded by Dr. Wardell. The patient was twenty-eight years old, and about three months pregnant; retention of urine for five days; abortion. On the twelfth day she complained of great pain over the pubes. A membranous mass was seen to protrude through the meatus urinarius, and this was fully expelled in half an hour. On examination it seemed as if the whole of the mucous coat of the bladder had been thrown off. The patient made a good recovery. Similar cases are reported by Dr. J. J. Phillips, who points out that retroversion of the gravid uterus by leading to retention of urine is one cause of the accident; by Mr. Spencer Wells, whose two cases occurred after severe cystitis following parturition; and by Mr. W. Whithead, who states that muscular fibre and serous tissue are often attached to and incorporated with the mucous lining expelled. ('Brit. Med. Journ.,' June 10, 24, July 1, and Oct. 14, 1871.)

Dr. Graily Hewitt contributes ('Obst. Trans.,' 1871) a paper on *the vomiting of pregnancy*, and believes that it results from flexion of the uterus, either forward or backward; the tissues of the uterus, including the nerve ramifications pervading it, being compressed at the seat of flexion and thus leading to the sickness. A somewhat similar view is also advocated by Hubert in the 'Lyon Méd.,' Oct. 1871.

Mr. Metcalfe Johnson recommends the simple hydrated phosphate of lime, in doses of from three to ten grains, in the sickness of pregnancy. ('Med. Times and Gaz.,' July, 1871.)

Gimbert writes in favour of the bromide of potassium administered in large doses by rectal injection for severe vomiting during pregnancy. He relates a case in which various remedies were tried in vain, but after three days the above method proved very successful. ('Bulletin de Thérap.,' 1872.)

A case of excessive vomiting at the sixth month of pregnancy is recorded by Dr. Campbell ('Boston Journal,' 1872). After various ineffectual kinds of treatment, the membranes were ruptured, and relief was speedily obtained; but labour did not come on for twelve days after puncturing the membranes.

Pypingskold relates two cases of uncontrollable vomiting during early pregnancy; one was kept alive by nutrient enemata, the other died without being delivered. ('Lo Sperimentale,' Jan. 1871.)

Mr. Ling records ('Lancet,' Sept. 1872) a case in which a patient, four months pregnant, was seized with agonising abdominal pains, followed by intense syncope and death in twelve hours. The abdominal cavity was filled with blood. A large hole existed at the fundus uteri, four inches in diameter; the edges of the wound were jagged, but the substance of the uterus was firm. The placenta was found with its attached surface presenting upwards in precisely the position it would take if adhering normally to the fundus, and the fœtus surrounded by the unruptured membranes was contained in the uterus. The uterine tissue presented in some parts only spoilt-looking granular remains of the muscular structure with extravasated blood, suggesting an injury

and subsequent local metritis, or an inflammatory condition producing softening of the tissue and subsequent rupture, with extravasation of blood into the muscular tissue.

See also a case of rupture of the gravid uterus at the seventh month. ('Amer. Journ. of Obstetrics,' Aug. 1871.)

The Diagnosis of Pregnancy.

Dr. Braxton Hicks points out that the pregnant uterus possesses the power and habit of spontaneously contracting and relaxing from the third month up to full term. This contraction most commonly occurs every five or ten minutes, though it may not recur for half an hour. It is independent of reflex stimuli. It is useful in providing for the frequent movement of the blood in the uterine sinus and decidual processes, and facilitates the movement of the fluid in the intervillal space, and it also adapts the position of the fœtus to the form of the uterus. It is of great value in the diagnosis of pregnancy. ('Obstet. Trans.,' 1871.)

Dr. Wallace advocates ('Edin. Med. Journ.,' Nov. 1872) the exact diagnosis of the placental position by vaginal stethoscopy. In three cases of flooding before delivery he has lately had the opportunity of testing the value of this diagnostic method; and in Case 1 he prognosticated marginal or partial placental presentation, in Case 2 centre for centre, and in Case 3 no placental presentation whatever. Each of these diagnoses were verified by the subsequent progress of the labours. He recommends a long and curved stethoscope. The patient is put into the usual obstetric position, the nates being well over the edge of the bed; the stethoscope, well lubricated with oil, is passed into the vagina, and placed first against the os uteri under the guidance of the finger. The ear can then be brought into contact with the stethoscope without any difficulty, and by carefully moving it in all directions from the os uteri as a centre, the whole of the superior part of the excavation, corresponding to the lower zone of the uterus, is explored in succession. The bellows murmur, heard by vaginal stethoscopy in central implantation of the placenta over the os uteri, has a loudness and distinctness of character rather startling to the ear accustomed to abdominal auscultation. When the presentation is central the murmur is heard over every part of the pelvic strait. If partial or marginal, the indication of the site is equally well marked, and in such instances combined vaginal and abdominal stethoscopic examination will map out with clear precision the site of the placenta when it has an anterior or lateral position. The absence of the characteristic signs by the abdomen, and the posterior situation of the vaginal bruit, with its absence in the anterior and lateral directions in the superior part of the excavation, will determine its partial presentation inferiorly, and posterior situation superiorly.

Duration of Pregnancy.

Dr. Matthews Duncan ('Edin. Med. Journ.,' March, 1871) states that prediction of the day of lying-in is an important practical matter, from whose arrangement all theory should be excluded. It is a valu-

able calculation of a quite empirical kind. He refers to Ahlfeld's elaborate memoir on the duration of pregnancy ('Monats. für Geburt.,' 1869), in which the duration is estimated at 271 days. Duncan recommends the following method:—Find the day on which menstruation ceased, take that day nine months forwards as 275 days, unless February is included, in which case it is taken as 273, to this add three days in the former case, or five if February is in the count, to make up the 278 days. Out of 153 cases the day of confinement was exactly predicted in ten cases in this manner. In eighty cases labour took place sooner, and in sixty-three cases later than was predicted. The average error was about seven and a half days, a circumstance which indicates that the prediction should not state the week, but the fortnight of delivery.

Abortion and Premature Labour.

Dr. J. J. Phillips contributes a paper on retroflexion of the uterus as a frequent cause of abortion. He states as the result of his observations that, after making due allowance for various constitutional causes, a most important factor in the production of abortion in many cases is a retroflected uterus. The increased susceptibility of the retroflected pregnant uterus to concussion from sudden movements, the mechanical irritation to which it is subjected, the straining in micturition and defæcation in such cases, and the irritation which the abnormal position sets up, appear to be very efficient excitors of uterine action, while the interference with the uterine circulation tends to the effusion of blood and death of the ovum. He relates cases where, after repeated abortions, the full term of pregnancy was reached by wearing a Hodge's pessary. ('Obst. Trans.,' 1872.)

Dr. Donaldson relates ('Glasgow Journ.,' 1872) an interesting case in which by means of premature labour induced at the eighth month, the life of the child was saved, though three former pregnancies had ended in the birth of stillborn children. The death of the children resulted, it was believed, from disease of the placenta, which contained throughout masses of cheese-like deposit.

Martini recommends chloride of gold and of sodium in the treatment of nervous disorders dependent on uterine disease. He believes the chloride is also useful in preventing the tendency to abortion. ('Rev. Clin. de Boulogne,' Jan. 1871.)

Mr. Bassett confirms the experience of Dr. Kennedy that in abortion the administration of ergot is generally inadvisable. When the hæmorrhage is slight, and the case threatening only, ergot may do good, as also where the ovum is detached and merely wants expelling. But no more regularity of action can be secured for it in miscarriage than in labour. Owing to its uncertainty and irregularity, and its well-known power of producing contraction of the circular rather than the longitudinal fibres of the uterus, it is inadvisable to administer it in many cases of abortion. ('Brit. Med. Journ.,' Oct. 1872.)

Dr. Noeggerath relates a case of abortion in which the secundines were expelled without the fœtus; the latter came away four weeks, at least, afterwards. ('Amer. Journ. of Obst.,' 1871, p. 551.)

Dr. Carl Rokitansky writes in favour of the artificial induction of labour by rupturing the membranes. ('Wien. Med. Presse,' 1871.)

Dr. Wiltshire contributes ('Obst. Trans.,' 1871) two cases of fatal tetanus after abortion. In both cases there had been great mental depression, which he believes had some influence in producing the disease. The first case was that of a lady who, while her husband was abroad, became pregnant illegitimately. It was suspected that abortion had been criminally induced by instruments at an early period of gestation. Symptoms of tetanus supervened in a few days, and rapid death. The only post-mortem uterine lesion was a bruising and slight laceration of the cervix uteri. A portion of placenta was adherent to the fundus. The second case was deserted by her husband, and the effect of this sudden mental distress was to induce abortion, which was followed by tetanus and death in a week.

In a contribution to the study of *fibrinous uterine polypi* Dr. E. Fränkel relates two cases. He quotes Kiwisch in favour of the view that such cases may be independent of a previous conception, and Scanzoni as believing that they follow only some antecedent dilatation of the uterine cavity, either from labour at the full time, or abortion, or from some change in the uterine walls. Fränkel's first case was that of a woman æt. 31. She aborted in June. In December there was a severe flooding, and she was admitted in a collapsed state. The question of transfusion was discussed, but the operation was not performed, as the patient was suffering, not simply from anæmia, but also from Bright's disease. The polyp was not removed in her then desperate condition. Notwithstanding various remedies, convulsions, coma, and death supervened. There were numerous capillary cerebral apoplexies, œdema of lungs, hypertrophy of heart, wasting of kidneys. The fibrinous polyp was found on the posterior wall of the uterus. The whole had the appearance of a villous hæmorrhagic neoplasma. The mucous membrane was thickened around, and there was also a small mucous polypus. A perpendicular section through the fibrinous polyp and the adjacent wall showed in the latter normal, but rather large, smooth, muscular fibres. Among them lay numerous lymphatic cells, red blood-corpuscles, finely granular and fibrous masses. Nearer the surface the characters of a fibrinous coagulum became clearly marked with only scattered muscular fibres. The second case was that of a patient, also æt. 31, who had been confined three weeks previously at the full time. The placenta had been cast spontaneously. She kept her bed for nine days, and then followed her usual domestic work. Dragging pains in pelvis; metrorrhagia; uterus slightly anteflected, its fundus extending above the pubes. A pear-shaped body, the size of a walnut, having a crumbled feel, with an uneven surface, presented at the os uteri. Its origin was from the hinder wall of the uterus. A cotyledon of the placenta had remained, which had served as the basis of the hæmatoma. After its removal and the injection of a solution of the sesquichloride of iron the bleeding ceased, and in a fortnight the uterus was of normal shape, size, and consistence. ('Archiv für Gynäk.,' ii, 1, 1871.)

Extra-uterine pregnancy.—Perrond gives a case of extra-uterine

gestation, of the abdominal form, in which the fœtus died at the seventh month without rupture of the containing cyst. Chronic peritonitis supervened, pulmonary vomicæ, colliquative diarrhœa, and hectic. Death resulted from exhaustion at the eighteenth month from the commencement of the pregnancy. ('Lyon Méd.,' Jan. 1871.)

A case of extra-uterine fœtation and superfœtation. (Argles, 'Lancet,' Sept. 1871.)

An interesting case of extra-uterine fœtation is reported by Mr. Johnson. After an illness of twelve months the general health improved, and continued good for forty-four years. At the end of this time fœtal bones were passed per rectum. ('Med. Times Gaz.,' June, 1872.)

Peck reports a case of extra-uterine fœtation in which the child, a fœtus of four months, was delivered by the rectum. Soon after the mother's bowels were relieved a fœtus passed per anum. The cord was found hanging from the bowel, and portions of the placenta subsequently passed away. Peck considers the case to be one in which the placenta was attached to the fimbriated extremity of the Fallopian tube, and the child during its growth by the side of the rectum gradually led to thinning of the tissues, and these ultimately gave way after the effort of defæcation. ('Journ. de Bruxelles,' Feb. 1871.) The post-mortem appearances in a case of extra-uterine pregnancy are described by Dr. M. Duncan. ('Med. Times and Gaz.,' July, 1872.)

Adams relates a case of extra-uterine fœtation, in which gastrotomy was performed after the full term of gestation. The pain from which the patient had previously suffered ceased at the end of the ninth month. There succeeded a profuse purulent discharge from the rectum, and portions of the fœtal skeleton passed by the same channel. There was also a fistulous opening near the umbilicus, from which pus and fæces escaped. After making an incision through the abdominal wall there was much difficulty in liberating the child, which was surrounded by false membranes. There were three fistulous openings between the rectum and the cavity in which the fœtus was contained. The patient recovered. ('Gaz. Méd. de Paris,' xxxii, 1871.)

Edgar records ('St. Louis Journ.,' viii, 4, 1871) a case of interstitial pregnancy.

Two interesting discussions have taken place at the Obstetrical Society on the treatment of extra-uterine fœtation ('Obst. Trans.,' xiii, xiv). Dr. Meadows, in Nov. 1872, related a case in which a living child was removed by abdominal section, but an attempt was made to remove the placenta and the fœtal cyst, and this was attended with such severe hæmorrhage that the mother died in a few hours. Dr. Meadows contended that in all cases where the diagnosis of a living and viable child could be made out gastrotomy ought to be performed, but that the placenta and the containing cyst should be left intact. The placenta should be left to undergo the slow but sure process of absorption, it being argued that, as by the removal of the fœtus there is no longer any physiological necessity for the placenta, its removal by atrophy might fairly be reckoned upon. Dr. Murray thought there was too much risk

incurred in completely closing the abdominal opening, as recommended by Dr. Meadows, and leaving the placenta behind without any chance of escape. Dr. Barnes and Dr. Hicks agreed that the placenta should not be removed, the former remarking that its non-removal was the established practice, and the latter that in three cases reported by him the fœtus alone had been removed.

A case of double conception, bearing on the question of super-fœtation, occurred in the practice of Dr. Chenery. The patient was forty years of age, and was found to have lost large quantities of blood, among which was a fœtus with its transparent membranes entire, and altogether of about the size of a common open-faced watch. The os uteri was dilated and another and a much larger fœtus was lying with its head pushing its unbroken investments through the cervix; its birth was expected, but it remained in utero till the full term of gestation. The one ovum was expelled at the eighth week with all the appearances of life up to the time, while the other (from calculations at its birth) was at that period at about the twentieth week. ('Boston Med. and Surg. Journal,' April, 1871.)

Two cases of *precocious pregnancy*. The first case was that of a girl, thirteen and a half years old. She suffered from puerperal convulsions, but ultimately recovered. The child was living and weighed 6 lbs. 8 oz. ('Med. Record,' Jan. 1872.) The second was that of a girl who had never menstruated, and who was eleven years eight months and a half old at the time of conception. ('Brit. Med. Journ.,' Oct. 1871). Dr. Young also records ('Edin. Med. Journ.,' July, 1871) a case of early pregnancy. The mother, at the time of labour, was fourteen years and ten months old.

III. LABOUR.

The Mechanism of Labour.

In some observations on the *innervation of the uterus* ('Archiv f. Gynäk.,' ii, 1, 1871), Dr. Reimann, of Kiew, publishes the result of experiments performed for the purpose of determining whether uterine contractions are dependent on the central nervous system. He experimented on bitches and cats, and subjected the uterus, partly or wholly separated from the body, to various kinds of irritation. He found that the uterus, separated from the cerebro-spinal axis, and even removed from the body, responded to the irritation, by peristaltic and rhythmical movements of the whole organ, even when only a portion of it had been subjected to the irritation. The kind of irritant—electricity, heat, cold, mechanical irritation—made no difference. He also found that the uterus separated from the body, but maintained at its normal temperature spontaneously contracted and relaxed for about an hour after the death of the animal; mechanical irritation increased the movements observed, narcotics diminished them. Similar rhythmical movements were, under like circumstances, observed in the Fallopian tubes. Dr. Reimann concludes that the contractions of the uterus are under the influence of certain organs (ganglionic), not yet anatomically demon-

strated, but which are situated in the uterus itself; and that, like the contractions of the heart, they are independent of the cerebro-spinal system, though physiological and pathological facts prove that the latter has certain influence over them.

Oser and Schlesinger record the results of numerous experiments to determine the cause of uterine movements. They experimented chiefly on pregnant rabbits, in which the uterus was generally at rest when they began their observation, and they found that whenever the blood which circulated either through the brain or through the uterus itself became extremely venous, tetanic contraction of the uterus took place. The irritation of the brain which produced uterine contractions was conducted down the spinal cord to the uterus, and when the cord was divided irritation of the brain from venous congestion produced no effect. Stagnation of blood in the uterus, produced by compression of the aorta, caused uterine movements of the same tetanic character. If spontaneous movements of the uterus were present, they soon ceased after compression of the aorta was begun; and when arterial blood was again allowed to circulate through the organ a strong contraction of the entire uterus, quickly followed by rest, took place. ('Centralb. f. Med. Wissensch.,' 1871, and 'Brit. Med. Journ.,' June, 1872.)

Dr. Matthews Duncan writes ('Dublin Quart. Journ.,' May, 1871) on *the efficient powers of parturition*. The first, and he believes the best, results in the investigation of this subject have been obtained by careful deduction from experiments on the tensile strength of the amniotic membrane. He next observes that if, in an unobstructed and powerful labour, the accoucheur, by the directly opposing pressure of his hand on the fœtal head, arrests its progress for one or several pains, he has in the pressure by his hand, a force which, added to the small amount required to effect parturition, exceeds all the combined powers of labour in this case. Duncan, well accustomed to such work, finds by actual trial with an accurate dynamometer, fifty pounds to be about the highest power he can use situated at the bedside in attendance on a case of labour. He believes that very few of the most powerful labours exert a force of 50 lbs., and that the great majority of labours are accomplished by repeated impulses, whose highest power probably never exceeds 25 lbs. He refers to the researches of Dr. Haughton (see 'Retrospect,' 1869-70), who follows a different method of investigation from the above, and measures the bulk and the extent of the involuntary and voluntary muscles employed in the function. Duncan comments on Haughton's conclusions. He does not say that Haughton is wrong in supposing that the uterus *can* exert a force of 54 lbs., but he believes that only a very few difficult labours require for their whole work a force exceeding 50 lbs. No perinæum would long resist a force of 50 lbs. repeatedly applied. He then furnishes arguments in favour of the power of the uterus in parturition as compared with the powers of the voluntary muscles, which he believes render Haughton's conclusion quite incredible that, while the power of the uterus is 54 lbs., that of the voluntary muscles can be 523 lbs. Haughton believes that on an emergency somewhat more than a quarter of a ton pressure can be brought to bear upon a

refractory child that refuses to come into the world in the usual manner. Duncan points out that such a pressure represents a strain to which the maternal machinery could not be subjected without instantaneous and utter destruction. The possession and use of a considerable portion of such a power would render the forceps and the cephalotribe weak and useless instruments; the mother could bray the child as in a mortar. Such a power would, if appropriately applied, not only expel the child, but also lift up the mother, the accoucheur, and the monthly nurse—all at once. If this force were applied just as the chief resistance to delivery was overcome, the child would be shot out of the vagina at the rate of thirty-six feet per second.

See also on the mechanism of labour, Schatz, 'Arch. f. Gynäk.,' iii, 1, 1871.

In a paper on *relaxation of the pelvic articulations during pregnancy* ('Amer. Journ of Obst.,' Nov. 1871), Professor King, after answering some of the objections which have been raised, states that physiological enlargement of the pelvic canal, in addition to that which takes place during pregnancy from thickening of the interosseous cartilages, is further increased during parturition by the muscular efforts of the female forcing the wedge-shaped sacrum downwards and backwards between the two iliac bones. He adds that the practical inference from this is that "square on the back" is the proper position for delivery; that the feet or knees should find a firm support on a surface disposed evenly *transverse* to the axis of the body, and that two sheets, one for each hand, should be so arranged that the woman may pull on them, not diagonally, but in a line parallel to the axis of her body, so that the spine may exert its downward force evenly upon the base of the sacral wedge.

On the mechanism of the expulsion of the placenta.—Dr. Duncan ('Edin. Med. Journ.,' April, 1871) states that the belief that the placenta generally descends into the vagina inverted, so that its fœtal surface is turned outwards, is erroneous. The part which presents at the os uteri, and subsequently at the os vaginæ, is not the fœtal surface, but the edge of the placenta, or a point very near the edge, and that the mass is folded up longitudinally during its expulsion. If the placenta descends inverted it is generally the result of pulling at the cord. Much less space is required for the passage of the placenta by the natural mechanism, and if the placenta is expelled inverted, as Baudelocque, Schultze, and others describe, the forcing of the placenta into a cuplike space cannot be effected without a hollow space being offered for the reception of blood, or, indeed, without a certain force being exerted to produce the folding and a vacuum, which force will also tend to draw blood into the hollow from the open uterine sinuses. The third stage of labour should be left to nature, or, if interference is required, the natural mechanism of the birth of the placenta should be as closely imitated as circumstances admit.

Professor Hodge, in an elaborate paper on *the synclitism of the equatorial plane of the fœtal head in pelvic deliveries*, criticises the reasons adduced by Sir James Simpson and Dr. Barnes in favour of

podalic version in preference to the use of the forceps, and he concludes that the operation of podalic version should always be regarded, not as one of choice, but as one of necessity. It is fraught with danger to the infant and to the mother in all complicated cases; it demands great skill and experience for its execution; numerous, and often unexpected, difficulties are apt to be interposed, and yet the time allotted is exceedingly short. The whole process of descent must be accomplished in a few minutes, or the child, for whose benefit these risks are incurred, will perish. Professor Hodge maintains that in head-last labours simple tractile force should not be the sole recourse of the practitioner, but that flexion of the head should be insured and maintained. ('Amer. Journ. of Med. Sci.,' July, 1871.)

Dr. Matthews Duncan contributes an elaborate paper *on the curves of the developed genital passage*. The *first* curve which he mentions is that said to be at the brim of the pelvis, with its convexity downwards and backwards. He discusses the views of Schatz and Schultze on this point, and concludes that this curve does not exist. If it does exist we must admit that the advance of the child's head is impeded, not only by friction and imperfect dilatation, but that a new difficulty is introduced to its transit, namely, the difference between driving a body through a curved and a straight passage. If this curve be admitted, the axis of the genital passage, regarded in the antero-posterior vertical plane, has the shape of a Roman S; but the author thinks that we are nearer the truth in adopting the view that in this plane the genital passage has only one curve, having the concavity of its axis looking forwards. The *second* curve is also at the brim, and is indicated by the deflection of the uterus from the mesial line to the right or to the left. The author gives the results of some experiments made to calculate the amount of deflection, and he states that the angle of deviation of the axis of the uterus from the axis of the brim has important physiological and practical bearings, though, as yet, but little worked out. The most interesting application of it is to assist in accounting for the production of face cases. The *third* curve is the most extensive and best known. It is the great curve in the antero-posterior vertical plane, which begins above the middle of the third bone of the sacrum and extends through the outlet of the ligamentous pelvis to the outlet from the soft parts. In connection with this curve the synclitic and allied movements of the fœtal head during its progress are to be studied. The author shows that Schultze's recommendation to facilitate the advance of the fœtal head after it has reached the floor of the pelvis by extension of the spine (this extension he believes increasing the posterior obliquity of the axis of the uterus, and therefore of the force of labour as exerted on this part) is founded upon what he (Dr. Duncan) regards as a misapprehension of the conditions of this curvature. ('Med. Times and Gaz.,' March 2, 1872.)

Prof. Trenholme writes on *irregular contractions of the uterus*, and states that in such cases he has found adhesions existing between the decidua and the uterine surface at term. He attributes the irregular contraction to laceration of the muscular fibres at the point of adhesion, the parts lacerated acting as direct excitants of the spasm of

the walls of the uterus. The treatment recommended is to pass the finger and separate the united surfaces, but when they are beyond reach it is best to rupture the membranes. Hour-glass and other irregular contractions after delivery are attributed to the same cause. ('Amer. Journ. Obst.,' May, 1872.)

M. Mattei, writing on false cramps during pregnancy and labour, says that they are to be explained by the pressure which the fœtus exerts on the course of the nerve which borders on the painful part, though the pressure be made far from the seat of pain. But these pains may also exist without pressure on the nerves, and may be a reflex phenomenon of uterine trouble. ('Gaz. des Hôp.,' Nov. 1872.)

Tachard writes on the use of electricity in midwifery. He believes that uterine contractions cannot be induced by it unless they have already commenced, and that uterine inertia coming on during the expulsive stage of labour is not to be treated by electricity, but that in the stage of dilatation, when applied to the lumbar region it increases the contractions, both in duration and intensity. The cervix dilates more readily, the expulsion of the placenta immediately follows the child, and neither the mother nor the child suffers from the treatment.

Dr. Chantreuil speaks favorably of uterine expression as a means of delivery. He bases his observations on 540 cases in which the practice was followed. ('Gaz. Méd. de Paris,' July, 1871.)

On the management of the perinæum during labour.—Dr. Goodell gives an elaborate historical account of the practice, and of the various methods employed. He concludes that when it seems necessary to aid nature the best method is to insert one or two fingers of the left hand into the rectum, the woman lying on her left side, with her knees well drawn up and separated by a pillow, and to hook up and pull forward the sphincter ani towards the pubes. The thumb of the same hand is to be placed upon the fœtal head, scrupulously avoiding all contact with the fourchette. The right hand is to assist the thumb in making the head hug the pubes, or in retarding its advance, and is to press back the head from the perinæum and thus to repress reflex uterine action. By this method the perinæum is brought forward without direct pressure, and its dilatation is diffused over its entire surface. The aid rendered is not liable to sudden interruption by any movements of the mother, and the circulation of the blood is left free. Dr. Goodell believes that the rapid springing back of the fourchette over the projecting nose, or the subsequent rapid expulsion of the shoulder often produces lacerations. These are also well controlled by the above method, in the former instance, by merely pulling forward the sphincter ani, in the latter by adding the support of the right hand to the emerging shoulders. ('Amer. Jour. Med. Sci.,' Jan. 1871.)

Dr. Swayne states ('Brit. Med. Journ.,' July, 1872) that his experience proves the inefficiency of support for the prevention of perineal lacerations. There is seldom any great danger of rupture until the head is protruded so far that the accoucheur can grasp the exposed portion with his thumb and fingers. When this can be done the best plan is to press the head forwards as much as possible under

the pubic arch, so as to prevent the *vis a tergo* from acting so directly downwards upon the perinæum. When rupture takes place the rent usually commences at the fourchette and extends backwards, but sometimes it begins near the centre of the perinæum and extends forwards. He believes that the most frequent cause of laceration is an unusual breadth of the perinæum.

Dr. Aveling has collected the history of forty-four cases of *post-mortem parturition*, and deduces the following conclusions. Expulsion of the contents of the uterus may take place after death without the aid of art. This may occur in cases in which no symptom of natural parturition existed before death. Spontaneous evolution of the fœtus, and prolapsus, inversion, and rupture of the uterus may occur post-mortem. These phenomena are explained either by the contracting power which persists in the uterus after the death of the rest of the body, or (and this is the more frequent cause) by the pressure exerted upon the uterus by gases of decomposition pent up in the abdomen. A child may continue to live in the uterus for many hours after the death of its mother. ('Obst. Trans.,' 1872.)

Deformities of the Pelvis, and Dystocia by the Mother.

Prof. O. Spiegelberg gives ('Archiv f. Gynäk.,' ii, 1, 1871) an elaborate report of two cases of obliquely distorted pelvis. The first case was that of a woman who had sustained a fracture of the right tibia in its lower half when three years old. The pelvis was contracted on the right side, and there was synostosis of the right sacro-iliac joint, and considerable shortening of the right lower limb. Premature labour was artificially induced in the thirty-fifth week of pregnancy. The second case is described as one of inflammation of the right sacro-iliac joint and secondary atrophy of the surrounding bones without synostosis. Delivery by perforation and cephalotripsy. Discussing the etiology, he states the two chief causes to be the inordinate pressure on one half of the pelvis and the one-sided atrophy of the bones entering into the sacro-iliac joint. Either of these factors may be the primary one.

Dr. Harris describes ('Amer. Journ. of Obst.,' Nov. 1871) the usual forms of pelvic deformities, and illustrates his paper by several typical examples.

Petit relates a case of oblique-ovate pelvis, in which the labour was quite natural. The child was of medium size. The brim of the pelvis, contracted on the left, was 12½ centimètres (about 5 inches) in its greatest oblique diameter, from the right ilio-pectineal eminence to the left sacro-iliac synchondrosis, and 9 centimètres (a little over 3½ inches) in the short oblique diameter, from the left ilio-pectineal eminence to the left sacro-iliac synchondrosis. The distance from the sacro-vertebral angle to the left ilio-pectineal eminence was 6 centimètres, and to the right nine and a half. ('Bull. Méd. du Nord,' Feb. 1872.)

Ernst Braun writes ('Arch. f. Gynäk.,' iii, 1) on a case of funnel-shaped pelvis.

The causes, nature, and treatment of rigidity of the os uteri. Dr. Isham ('Amer. Journ. of Obstetr.,' July, 1871).

Dr. J. J. Phillips ('Lancet,' March, 1871) relates in detail three cases of successful version with living children after failure of the forceps. In each case the conjugate diameter of the pelvis was narrowed. In the first it measured very little over three inches; in the second, three inches and a half, but the fœtal head was very large and firm; and in the third the jutting of the sacral promontory had produced a marked depression on the left parietal and frontal bones of the fœtal head.

For remarks on turning in pelvic contraction see Höning. ('Berl. Klin. Woch.,' viii, 34, 1871.)

An interesting case, showing the behaviour of uterine fibroids during pregnancy, labour, and the puerperal state, is recorded by Dr. Madge ('Obst. Trans.,' 1872), and a case of inertia of the uterus during labour from the existence of two fibroid masses at the fundus by Depaul ('Gaz. Méd. de Paris,' Aug. 1871). Magdelaine also writes on the complication of pregnancy and labour with subperitoneal fibroids of the uterus ('Arch. Génér.,' xvii, 214). In a case of fibrous tumour, nearly filling the pelvis and complicated with pregnancy, Dr. Habit induced premature labour, and, with the patient under chloroform, lifted up the growth out of the pelvis. Successful result to mother and child ('Wien. Med. Zeitsch.,' 1871). Cases of fibroids of the uterus, not interfering with the action of the organ at the time of labour are related by Dr. Goodell ('Amer. Journ. of Obst.,' 1872) and by Mr. Harries ('Guy's Hosp. Gaz.,' Nov. 1872).

Chantreuil writes on cancer of the uterus in reference to conception, pregnancy, and labour. Out of sixty cases, twenty-five died during labour or in the puerperal state, thirty-five were restored to health for a time. In the twenty-five fatal cases rupture of the uterus during labour occurred six times, nine cases died from peritonitis, seven died after serious operations, and thrice the cause of death was not ascertained. Twenty-eight out of the sixty children were born alive. During the earlier months of pregnancy the body of the uterus is developed independently of the cervix, which is the usual seat of cancer, and thus gestation is but little interfered with until the latter part of pregnancy, when premature labours are frequent. Occasionally cancerous infiltration of the cervix prevents its dilatation, and becomes also, a cause of unusual prolongation of pregnancy beyond the normal period. Pregnancy hastens the progress of uterine cancer. The line of treatment which he advocates is either the induction of abortion, the performance of the Cæsarean section at term, or the incision of the neck of the uterus and application of the forceps. The last method he describes as almost always fatal to the mother and offering less chances of life to the child. ('Du Cancer de l'Utérus, &c.,' Paris, 1872.)

Dystocia by the Child.

Dr. Reimann, of Kiew, relates ('Archiv f. Gynäk.,' ii, i, 1871) a case of difficult labour resulting from the simultaneous presence of

twin fœtal heads in the pelvis. The patient was seized during labour with convulsions, and the attendant applied forceps to the presenting head and delivered it easily. The shoulders did not follow, and on examination a second head was found in the pelvis. When Dr. Reimann arrived he applied forceps to the second head, the body of the first child then followed, and afterwards that of the second. He thinks that the delivery by forceps did not cause the difficulty, as this is the only case of the kind he has found recorded in which the first head was delivered artificially. Probably a capacious pelvis has some influence in the production of the accident.

The delivery of a dicephalous monster is described by Wettengel. ('Amer. Journ. Obst.,' Nov. 1871.)

Dr. Porter relates a case of successful reduction of prolapsed funis by the postural method. The position he recommends is on the knees, with the *chest* and *face* resting on the bed. ('Amer. Journ. of Med. Sci.,' Jan. 1871.)

Cases of quadruplets are recorded by Leopold ('Arch. f. Gynäk.,' ii, 2, 1871), by Lowndes ('Brit. Med. Journ.,' Feb. 1872), and by Cuppaidge ('Dubl. Journ.,' March, 1872).

Obstetric Operations.

Cæsarean section.—This operation was performed by Mr. Gibbons on a woman, æt. 22, and who was three feet ten inches in height. Uterus contracted rapidly; no sutures were applied to the uterine wound. Uncontrollable vomiting commenced soon after, and continued till death, forty hours after the operation. No peritonitis, no extravasation. Antero-posterior diameter at brim an inch and three quarters. Transverse diameter 4·1 inches. ('Obst. Trans.,' 1871.)

In a case reported by Dr. Inglis ('Edin. Med. Journ.,' 1871) the abdominal incision was made on one side of the median line, so as to avoid incising the expanded central tendon between the recti, which is too mobile to be afterwards kept in apposition; and the uterine incision was commenced an inch and a half to the left of the mesial line, and was carried first downwards and then to the side, the curve of the incision corresponding with the direction of the outer circle of fibres surrounding the left cornu. The object of this was to avoid cutting across more muscular tissue than was necessary. He doubts the advisability of inserting sutures into the uterine wall.

Dr. Harris records ('Amer. Journ. of Obst.,' 1871-2) sixty cases of the Cæsarean section in America. Of these, thirty-two were successful as regards the mother, and twenty-seven of the children were saved. One hundred and six cases are quoted from Great Britain and Ireland, eighty-eight of which were fatal to the mother, while sixty of the children were saved.

Dr. Andrei compares ('Western Lancet,' 1872) the result to mother and child in a large number of cases, the summary of which he has collected, of premature labour, symphyseotomy, and Cæsarean section.

M. D'Olier performed the Cæsarean section on account of a sacral

tumour obstructing delivery, with a successful result to the mother There was a great tendency after extracting the child to eversion of the inner surface of the uterus, but no uterine sutures were employed, ('Abeille Méd.,' No. 4, 1871). See also a successful case for pelvic deformity, Foster, ('Lancet,' June, 1872).

Dr. Yarrow reports ('Lancet,' Oct., 1872) a case of Cæsarean section. The pelvis was of the rickety type, the antero-posterior diameter being one inch and a half. After extracting the child alive the edges of the external wound were brought together by interrupted sutures, but no sutures were inserted through the uterine walls. The patient lived six days. The uterine wound measured one inch and a half; it was open, and there was a small quantity of dark coloured blood in the pelvis. The intestines and their peritoneal covering were healthy, but the peritoneum investing the posterior part of the pelvis was inflamed.

A successful case of Cæsarean section is recorded by Caussé ('Lyon Méd.,' July, 1872). The mother was thirty-two years old, rachitic, and the sacro-pubic diameter measured 0·067 millimètres. The child also was extracted alive and survived.

Dr. Hoscheck performed the Cæsarean section upon a patient who died from phthisis, near the full term of her pregnancy. The operation took place about ten minutes after death, and although the child was apparently dead when extracted, insufflation from mouth to mouth restored it. ('Archiv f. Gynäk.,' ii, 1, 1871.)

Molinier also relates ('Gaz. des Hôp.,' lxxxi, 1871) a case of post-mortem Cæsarean section, in which the child was saved.

On decapitation as a mode of delivery in cases of shoulder presentation, in which version cannot be safely effected.—Dr. G. H. Kidd ('Dublin Quart. Journ.,' May, 1871) writes on this subject. He describes three conditions in which version cannot be performed without exposing the mother to danger. These three conditions are respectively met with; 1. In those cases where the shoulder is so far advanced into the pelvis, and the action of the uterus is, at the same time, so strong that it is impossible to raise or move the child. 2. In cases where the difficulty arises from the firm contraction of the uterus, the liquor amnii is evacuated before dilatation of the os uteri has taken place, and the uterus becomes moulded to the child's body. It is, in these cases, quite possible to introduce the hand, seize a foot and bring it down into the vagina; but the child does not turn, the head remains fixed in the iliac fossa, and the uterus may be torn in the efforts to complete the delivery. 3. In cases of transverse presentation with extreme narrowing of the pelvis. Dr. Kidd describes the various instruments which have been used for decapitation, and especially a plan adopted by Prof. Heyerdahl, and practised in a modified form by Pajot and Tarnier. The instrument consists of a handle and a hollow stem, with a strong wire in its centre; and after it has been passed round the neck the internal wire is pushed upwards, and a loop of string can now be passed round a knob placed at the end of the wire. A cord is thus left round the neck, by means of which a chain or wire rope is drawn round, and with this the neck is sawn through. Dr. Kidd suggests that the operation may be much

simplified, as the cord might be very easily carried round the child's neck by means of an elastic catheter mounted on a firm stylet or on a uterine sound. The catheter should be a good deal curved, and after it has been passed round the neck the cord may be attached to it and drawn back with it. The ends of the cord are now drawn through a speculum, the catheter having been first removed, and the neck is divided. The operation might be further improved by using an écraseur for dividing the neck, by which the accidental interruption of the operation by breaking of the cord would be avoided, as well as the risk of injuring the soft parts of the mother by its friction. Dr. Kidd thinks that it would be best to stop as soon as the spinal column is divided, and to leave the head attached to the body by a portion of the soft tissues of the neck. It is obvious that the division of the spinal column would do away with the difficulty of turning, and the tissues attached to the head would facilitate extraction.

Drs. Affleck and Macdonald relate ('Edin. Med. Journ.,' July, 1871) a case of shoulder presentation in which turning was impossible, and decapitation was impracticable, owing to the position of the fœtus with the head very high up and the narrowness of the inlet of the pelvis; they, therefore, resorted to spondylotomy. The thorax having been opened by long vaginal scissors, two fingers were introduced, so as to push aside the contents of the chest and feel for the vertebral column. The spine was then clipped through without any great difficulty. Traction was then resumed on the foot, which had originally been brought down, and this time with complete success. An old practitioner, in the same journal (Oct. 1872), prefers to spondylotomy or decapitation the removal of the presenting arm, and also of the other arm. He says that the increase of space afforded by the removal of the two little fat arms is very great, and the shoulders being removed from the chest greatly increases the facility of turning. He has practised this method on several occasions.

Mr. F. W. Wright recommends ('Brit. Med. Journ.,' Oct. 1871) a method of bisecting the fœtus in utero in arm presentation, in which version is impracticable. The presenting member is to be seized with the right hand, and, while considerable traction is employed, the left hand is to be introduced into the vagina and kept firmly upon the child's neck. A blunt hook with a curve sufficiently large to embrace the neck, and having a perforation at the extremity of the curve, is armed with a piece of tape and made to embrace the neck. A leash of about a dozen very thin wires, about a yard long, twisted together at the ends, should be tied to the end of the tape. By pulling at the tape the wires will be drawn over the child's neck, and with a saw-like motion of the wires the head may be cut off in five seconds.

Dr. Tucker, of Bermuda, describes a method of delivery in cases of arm presentation, after the usual mode of turning has failed. He places the patient as for lithotomy, perforates the body of the child, and empties the abdomen and thorax sufficiently to enable him to reach the bodies of the fœtal spine. He then crushes these with a strong forceps. Bending of the child's body then takes place, and it descends sufficiently low to enable a handkerchief to be passed

round it, when, making traction, the pelvis and lower extremities soon descend, followed by the trunk. ('Lancet,' Feb. 1871.)

Depaul relates two cases of shoulder presentation in which he decapitated, and insists on the operation in severe cases of the kind where turning is impracticable. ('Jour. de Bruxelles,' July, 1871.)

Dr. Cappie suggests ('Edin. Med. Journ.,' 1871) that in using the forceps the task of introducing, guarding, and directing the blades should be trusted entirely to the fingers of the right hand, and that in the first stage of introduction the left, crossed over the right wrist, should have little more to do than to support the shank or handle of the instrument. By thus acting the ordinary obstetric position does not require to be disturbed, and the forceps can in this way be applied in many instances where it would otherwise be impossible.

Barclay introduces a new form of midwifery forceps. It combines Tigler's male and female blades with the length, strength, and curve of Simpson's. ('Lancet,' Jan. 1872.)

Fasbender publishes four cases of version performed by the method of Braxton Hicks. He points out that one great advantage of the bimanual method is that it facilitates cephalic version; in podalic version there is always the risk of certain accidents, such as compression of the cord, the crossing of the arm behind the neck, constriction of the neck of the uterus around the child's neck, which, by prolonging extraction, more or less compromise the child's life. Fasbender performed cephalic version in three of the four cases, each of these was a case of shoulder presentation, and podalic version in the fourth, a case of placenta prævia. ('Beiträge zur Geburt. und Gynäk.,' Berlin, 1871, i, 8.)

Professor Halbertsma recommends that an external examination of the uterus should be substituted during labour for the internal examinations which are so frequently made. It has been proved that internal examination may generate infection. By external examination alone we can, in most cases, ascertain the position of the child, whether it has sunk deep into the pelvis, and by auscultation whether there is danger for the child. We shall in this way not be able so well to ascertain whether the delivery is proceeding, yet the nature of the pains and the flow of liquor amnii are some indications. The first and second cranial positions can often be diagnosed by external investigation alone. When there is danger of infection from the accoucheur the external examination should be the rule, the internal one the exception. ('Med. Times and Gaz.,' June 10, 1871.)

Drs. Braxton Hicks and J. J. Phillips, in a paper published in the 'Obst. Trans.' for 1871, call attention to the imperfect and unscientific manner in which the usual tables of mortality after obstetric operations have been compiled, and to the delusive conclusions to which they consequently lead. A brief abstract of a very large number of cases traced to their original source is added, and the conclusion at which the authors arrive is that, in a very large majority of the fatal cases, death resulted either from the condition which rendered the operation necessary, or from the too long delay of instrumental assistance.

Dr. Matthews Duncan writes ('Brit. Med. Journ.,' Nov. 1872) on

the appliances used for mechanical dilatation of the cervix uteri. He compares the bougie, the tangle-tent, the sponge-tent, and the india-rubber bag, in reference to the amount of force exercised, the amount of expansion produced, and the amount of time required for producing the expansion. In using great force to pass a common uterine probe the instrument is bent, and by experiment the force required to bend it is found to be about four pounds exerted at its point, the handle being fixed. With the same force used the tension overcome will be the greater in proportion as the wedge is sharper or has a smaller angle. Assuming the surface pressed upon in the cervix to be one tenth of an inch in breadth, then the dilating force exerted will be about nine lbs., if the wedge have an angle of 90 degrees, or 90 lbs. on the square inch, and about eighteen lbs. if the wedge have an angle of 45 degrees, or 180 lbs. on the square inch. The tangle-tent was found experimentally to have an expanding force of 300 lbs. on the square inch, the sponge-tent a force of only from 20 to 30 lbs., and the india-rubber bag a force from 15 to 25 lbs. on the square inch. The amount of dilatation produced by the ordinary series of surgical bougies successfully used is about a quarter of an inch. A tangle-tent whose stem is about one fifth of an inch in diameter expands to one half an inch if not subjected to pressure, but in proportion as the resistance to be overcome increases so does the amount of actual expansion decrease. A small sponge-tent more than trebles its diameter when not under any constraint: its expansion, however, under slight compression is very small indeed. The expansion produced by the india-rubber bag is practically unlimited, because any bag can be easily withdrawn, and another of larger size immediately substituted for it. No time is lost in bringing the full power of the bougie into action. The tangle-tent expands very slowly; before its small dimensions have doubled twelve hours will have elapsed. The sponge-tent rapidly expands when unconstrained: and no time is lost in bringing into action the full power of the india-rubber bag, and its power continues till its full expansion.

Accidents during Labour.

Rupture.—Fourrier records a case of rupture of the uterus with escape of the fœtus and placenta into the abdominal cavity, in which he performed gastrotomy on the fifth day. The patient was 29 years of age, the mother of two children. Six weeks before her expected labour she fell in going down stairs; this, however, gave rise at the time and for a few days afterwards to only slight abdominal pains. Labour came on at term, and soon after the rupture of the membranes she felt sudden and severe pain, and there was cessation of labour-pains. On careful examination four days afterwards, the abdomen presented two tumours; the one on the right was made up of the fœtus, while that on the left was about the size of the uterus soon after labour. An incision was made on the right, the fœtus with its membranes and the placenta were extracted, and, although the patient afterwards presented some indications of purulent infection, she ultimately recovered. Fourrier calls attention to the absence of any severe hæ-

morrhage, only a slight sanguineous discharge appeared externally eight hours after the rupture. The presence of the fœtus in the abdominal cavity did not give rise to general peritonitis. He believes that the fall was an important element in the production of the rupture; it probably produced a contusion of the uterus which led to thinning of the uterine walls. ('Bull. de Thérap.,' Aug. 1872.)

Prof. Dohrn writes ('Arch. f. Gynäk.,' iii, i) on a case of ruptured uterus in the first stage of labour. Rickety pelvis, no degeneration of uterine tissue. Cessation of fœtal heart sounds early in labour.

Rupture of the uterus is also illustrated by Clements ('Brit. Med. Journ.,' Oct. 1871), Whinery ('Philad. Rep.,' March, 1872), and Mordhorst ('Deutsche Klin.,' Nos. 17, 18, 1872).

Mr. Jamieson relates ('Edin. Med. Journ.,' Sept. 1872) a case of vaginal rupture, unattended at the time of its occurrence by any serious symptoms. The child was born by aid of the forceps, dead. At the post-mortem examination the pelvis was found to be in every respect normal, but there was an acute curvature of the spine in the lower dorsal region; the spine was so shortened that the last ribs were on a lower level than the crest of the ilium. The anteversion of the uterus was very great, and it therefore acted at a great mechanical disadvantage, but, continuing to contract violently, tore itself from its vaginal attachments.

Four cases of *uretero-uterine fistula* are recorded in the 'Boston Journal,' Jan. 1872. Each case succeeded to a difficult labour, and was characterised by an almost uninterrupted flow of urine from the os uteri, with complete continence of urine in the bladder.

Dr. Argles relates the case of a primipara, in which the fœtal head passed through the posterior wall of the vagina, and the face presented through an artificial opening in the perinæum, just anterior to the anus, and without injuring the bowel. Dr. Argles passed a director down the natural passage, between it and the child's head, and slit it up for an inch and a half. The wound entirely healed, and the patient was able to walk down stairs in three weeks. ('Lancet,' April, 1871.)

Inversion.—Dr. White contributes two additional cases of inversion of the uterus, completing a series of nine cases, all of which have been reduced by manipulation by a single effort. One case was of fifteen years duration. In recent cases the fundus can be pressed into the body and neck, or "dimpled" as it is termed, by pressure upon the most depending part. In chronic cases Dr. White uses the left hand over the pubes, the fingers pressing on the anterior wall of the uterus and assisting in pulling open the uterine cavity. The right hand encloses in the vagina the entire uterus, and pressure is made against the fundus by a wooden or hard-rubber enlarged extremity of the repositor, the distal extremity of the stem being made into a screw so as to fasten into a coil of steel spring wire, requiring eight or ten pounds pressure by the breast of the operator, against which it is placed, to bring it down. ('Amer. Journ. Med. Sci.,' April, 1872.)

Four cases of inversion of the uterus are recorded by Dr. Braxton Hicks. Restoration was effected in each case, in one case a week after labour. He wonders why any doubt has been expressed that removal of

the placenta before attempting to restore the uterus is the best practice. ('Brit. Med. Journ.,' May, 1872). In some remarks on two chronic cases (ibid., Aug. 1872) Dr. Hicks recommends the introduction of air bags into the vagina, which should remain for two days. The first bag is a ring-shaped one, pressing on the upper vagina equally all round, and steadies the uterus under the pressure of the second bag, which is a globular one, pressing on the inverted fundus, as the fundus passes through the ring of the first bag. At the end of two days chloroform should be given and reduction effected with the hand; or pressure should be continued on the fundus by a vulcanite stethoscope, having a pear-shaped elastic bag drawn over the thoracic end and tied round the stem tightly. Into the opening at the aural end of the stethoscope a stopcock can be screwed, and attached to an india-rubber apparatus, by which means the bag at the other end can be distended. When restoration is effected the end of the stethoscope will have entered the cavity of the uterus. It is well to give a dose of opium every eight or twelve hours to lessen the irritability of the uterus.

A case of inversion of the uterus with no perceptible shock and very little hæmorrhage. Dr. Bell ('Lancet,' Sept. 1871).

Dr. Woodward relates ('Amer. Journ. of Med. Sci.,' 1871) a case of spontaneous inversion of the uterus in a primipara. The placenta was shed naturally, but severe post-partum hæmorrhage supervened; the hand was introduced, and when the patient was left, the uterus was normal in position. Next morning, contrary to advice, she was allowed to get up and sit on the commode; severe hæmorrhage came on, and the uterus was found inverted. This was restored, but the patient died with symptoms of thrombosis.

Dr. Taylor contributes an elaborate article on the mechanism of spontaneous active uterine inversion. ('New York Journ.,' May, 1872.)

A case of inversion came under the care of Dr. Hall Davis ten months after labour. Ordinary efforts at reduction failed, and, the patient being too weak for sustained pressure during consecutive days, the uterus was removed by the single wire écraseur. Discharged on the thirty-third day. ('Obstet. Trans.,' 1872.)

A case of *emphysema* during labour is related by Dr. Whitney ('Boston Journ.,' Nov. 30, 1871). The patient was a robust young woman, in her first labour, which was very severe and protracted. The irruption of air took place in the night, and was momentarily attended with some difficulty of breathing; it was so extensive as to nearly or quite close the eyes, reaching to all parts above the waist, where it was arrested in its downward progress by the tightness of the clothes. The attendant assured his patient and her friends that it would spontaneously disappear in a few days, and this prediction was fully verified. Whitney refers to Cazeaux's work, which contains a chapter on pulmonary and subcutaneous emphysema, and in which cases such as the above are stated to be more rare than those in which the air spreads to the face and neck only, and may occasion oppression and threaten suffocation. A case proving fatal in forty-six hours after delivery has been recorded by Depaul, where the air diffused itself through the in-

tervesicular, interlobular, and sub-pleural cellular tissue, invading both lungs without going beyond them. The autopsy revealed emphysema of the cellular tissue of both lungs.

Dr. Mackenzie also reports ('Amer. Journ. of Obst.,' 1871) a case of emphysema occurring during labour. He considers that the emphysematous condition was caused by the rupture of one or more vesicles in the lungs from the spasmodic action of the diaphragm. The patient was well on the eighth day.

Mr. Jalland relates a case of *vaginal thrombus*. It burst spontaneously after the expulsion of the placenta. The patient became pulseless, but the hæmorrhage was controlled by pressure. ('Obst. Trans.,' 1872.)

Fibrous tumour removed after labour.—Dr. Yeld relates the case of a multipara, æt. 37, in which, when the hand was introduced to remove the placenta, a large mass was found firmly adherent to the walls of the uterus. This was believed at first to be the placenta, and was removed by traction and breaking down of surrounding adhesions. The mass weighed four pounds and a half, and measured nine inches in circumference. The patient died in two hours. ('Brit. Med. Journ.,' June, 1871.)

Hæmorrhage—Transfusion.—Dr. Braxton Hicks calls attention to a form of concealed hæmorrhage before the expulsion of the placenta, not usually described. Owing to adhesion of the membranes to the lower part of the uterus, while they, together with a portion of the placenta, are detached above, blood collects and inverts the free portion into the vagina, forming a bag full of blood. ('Brit. Med. Journ.,' Feb. 1872.)

Three severe cases of concealed accidental uterine hæmorrhage are recorded by Mr. Parsons. ('Brit. Med. Journ.,' June, 1872.) Dr. Goodell also writes on this subject. ('Amer. Journ. Obstet.,' 1871.)

A successful case of transfusion, by M. De Belina. The patient, æt. 26, had previously had many severe floodings after abortions. She was now four and a half months pregnant, and the hæmorrhage was so profuse that she was found in a state of profound syncope, and presented all the appearances of approaching death. The blood was obtained from her sister; it was defibrinated, filtered, and then injected. The improvement was sudden and well marked, and the patient soon expressed herself relieved, and said she had felt an agreeable sensation of warmth extending from the arm to the chest. ('Gaz. Méd. de Paris,' Feb. 1871.)

Dr. Aveling describes and figures ('Lancet,' Aug. 1872) his instrument for immediate transfusion, and relates a successful case in which it was used after post-partum hæmorrhage. A fold of skin over a vein at the bend of the elbow is raised, transfixed, and divided. The flattened vein should be seized with a forceps and raised, while an incision is made, and the bevel-pointed silver tube of the instrument inserted into it. The tube should be filled with water, and kept full by placing the thumb over its larger opening. The arm of the blood-donor should then be prepared, and the round-pointed tube inserted into it. The hand of an assistant holds the efferent tube and the lips of the small wound together, and another assistant holds the afferent tube secure. The india-rubber portion of the apparatus, which consists of a central bulb

with a tube proceeding from it on each side, terminated by a stopcock. It is filled with water and connected with the silver tubes. The cocks are then turned straight and the operation commenced by compressing the india rubber on the efferent side and squeezing the bulb. This forces two drachms of water into the efferent vein. The afferent tube is then compressed and the bulb allowed to expand slowly, when blood will be drawn into it by the efferent vein. By repeating this process any quantity of blood can in any case be transmitted.

Dr. Richardson stated at a meeting of the London Medical Society ('Lancet,' Feb. 1871) that the details of the operation of transfusion had reference to the needle, the knife, and the passage of fluid into the veins. The needle he recommended is curved, probe-pointed, and with an opening in the under side at the top, curved so that when introduced into the vein, if the end is held down, the apex applies itself to the upper wall of the vein, whilst the under side of the needle is free and allows the blood to escape. As to the knife, it should be one to enter the vein at once, having a small blade with a cutting edge along the entire of one side, and only for about one eighth of an inch on the other. As to the passage of fluid, all syringes are bad. The mere elevation of the vessel containing the blood above the patient is sufficient. He uses a vessel constructed at the base and then widened out gradually to the top. At the constricted part a wet valve is formed by a floating ball when the vessel contains fluid, and this fluid gets low in the vessel. At the lowest part of the vessel is an arm attached to a tube, and this tube is connected with the needle, the fluid from the vessel finding its way along the tube to the needle.

Dr. Higginson contributes a report of thirteen cases of transfusion. The average quantity of blood injected was nine ounces, the largest quantity was twenty ounces, and the smallest four ounces. No substance was mixed with the blood, and it was not subjected to any manipulation. Ten of the cases occurred in obstetric practice, and four of these recovered. ('Liverpool Med. Surg. Rep.,' 1871.) A successful case of transfusion is recorded by Dr. Ringland ('Dub. Journ.,' Jan. 1871.)

Duplerris publishes twenty-four cases of post-partum hæmorrhage treated by the injection of a solution of iodine into the uterus, all with a successful issue and no accident. ('Bulletin de Thérap.,' 1871.) Dr. Booth also writes on injection of iodine in post-partum hæmorrhage. ('Virginia Record,' Dec. 1871.)

Therapeutics.—Monteverdi records ('Gaz. Méd. de Paris,' No. 5, 1872) the results of various experiments made to determine the action of quinine on the uterus. He invariably used the sulphate, and found that this substance exercised a general tonic influence on the various organs, but especially on the uterus. About half an hour after its administration it produced slight contractions of the uterus independent of pain, and these contractions became gradually of longer duration and stronger, with distinct intervals of rest, in every respect similar to the ordinary pains of parturition. These effects lasted two hours. The dose employed was about twenty centigrammes. Quinine appears to him preferable to ergot of rye, since it has no injurious effect on the

mother or the child, its action is certain, the contractions it induces are regular and natural, and it is free from danger at whatever period of pregnancy it is administered. See also Delioux de Savignac, 'Bull. Gén. de Thérap.,' vol. 81.

Dr. Denham concludes that ergot of rye does not act as a poison on the fœtus. Physiological experiments on animals are in favour of the view that ergot is, at all events, not a powerful or violent poison. He believes that when ergot is administered between the sixth and ninth months the life neither of mother nor child is affected, and that labour is not induced by it until the full period of utero-gestation is completed. ('Dub. Obst. Soc.,' 1872.)

Dr. Thompson believes that ergot should be administered with great care in persons of feeble cardiac power. ('Brit. Med. Journ.,' Aug. 1872.)

IV.—The Puerperal State.

Professor Martin adheres to the view previously put forward by him as to the nature of *puerperal fever*, that it is due to a diphtheritic process set up in the female genitalia, this diphtheritis spreading by an infiltration of the pelvic cellular tissue, occasionally by extension along the mucous membrane direct to the peritoneum, or more frequently through the lymphatics. In reference to the influence of retained decomposed portions of placenta in setting up puerperal fever he points out that fragments are frequently retained in utero without setting up any decomposition or putrid absorption, so that in the former cases some other incident must be sought to explain the occurrence. He thinks a preceding inflammation of the genitalia, as seen in several cases of gonorrhœa before labour, has some influence in producing the diphtheritic condition after labour; although, as a rule, the poison gains access in other, and very different ways. Martin points out that diphtheritic affection of the genitals does not exclusively attack lying-in women, although they are particularly subject to it. Dubois observed that at the time when puerperal fever was epidemic, the young midwives of the Maternité were occasionally, during menstruation, attacked with a febrile affection analogous to that affecting the women whom they attended. In reference to the treatment, the prophylactic measures are the most important, but digitalis, quinine, and baths are indicated for the fever, while disinfectant vaginal and uterine injections are insisted upon. ('Alleg. Mediz. Zentr.,' Aug. 9 and 12, 1871.)

The pathology of puerperal fever is discussed by Omboni. ('Gazz. Lomb.,' 25, 26, 1871.)

Dr. Waldeyer, of Breslau, writes ('Arch. f. Gynäk.,' iii, 2) on the occurrence of Bacteria in the diphtheritic form of puerperal fever. After referring to the labours of Mayrhofer, Haussmann, Coze, and Feltz, in the same direction, he states that he has examined the diphtheritic deposit on the inner surface of the uterus, the puriform masses in the lymphatic vessels of the uterus and of the broad ligaments, the peritoneal exudation (both the fluid exudation and the yellowish-white purulent fibrinous flakes), and in one case the thick exudation in the

pleural cavities and pericardium. In all these he has found bacteria in a remarkably large quantity. In the diphtheritic patches they lie between the pus-cells and those of the partly mortified tissue elements. The puriform contents of the lymph channels consist of pus-corpuscles and (in large proportion) of bacteria, and these latter are also to be found in the peritoneal flakes, mixed with pus-corpuscles, young cells, and fibrine masses. In the last case, on which Waldeyer bases his observations, the post-mortem examination was made six hours after death, the body was yet warm, and nowhere were there any indications of decomposition to be observed in the organs. The occurrence in all the cases of bacteria within the pus-corpuscles is very noteworthy. Waldeyer believes that the changes originate on the inner surface of the genital canal, and creep upwards along the lymphatics to the peritoneum. An exudative purulent inflammation of the abdominal parietes occurs, which quickly extends to the diaphragm; and then we find inflammation of the diaphragm, and still further pleuritis and pericarditis.

Contribution to the Study of Puerperal Septicæmia.—The following is the summary of the conclusions arrived at by M. d'Espine in his long and elaborate articles on this important subject, recently published in the 'Archives Générales de Médecine.' 1. Puerperal septicæmia consists of a series of symptoms, the gravity of which is in direct relation to the quantity of septic matter absorbed by breaches of surface in the utero-vaginal canal. 2. These symptoms are not peculiar to the puerperal state, and ought to be classed with those produced by septicæmia in the wounded and in animals. 3. The source of puerperal septicæmia is always the uterus or vagina; and all causes which prevent the healing of the bared interior of the uterus, or which favour the production of septic matter in its neighbourhood, have an important action in its production. 4. The most common channel of absorption is through the lymphatics, and its passage through them can generally, but not always, be traced by lymphangitis. 5. Peritonitis is the result of the conveyance of septic matter through the lymphatics of the uterus, and it may be compared to the local inflammations which develop round infected wounds. 6. The effect of septic absorption is to develop congestions and inflammations in internal organs, chiefly in the lungs, kidneys, and intestines; subserous ecchymoses and interstitial apoplexy; internal and external inflammations, which localise themselves in the neighbourhood of the serous membranes; *during life*, these actions are recognised by fever, diarrhœa, pulmonary congestion, epistaxis, and often by fugitive cutaneous eruptions. 7. Milk fever has no existence; febrile action in the first week after delivery almost always depends on absorption of lochia through slight abrasions or lacerations of the utero-vaginal canal. It may continue for some weeks should the uterus not be firmly contracted, or should the lochia be fœtid. In the latter case ulcerations, through which absorption takes place, may almost always be found either on the cervix or in the vagina. 8. These slighter affections are often, but not always, accompanied by angioleucitis and slight perimetritis. When the septic poison continues long we may have consumption and death (*phthisie septique*). 9. Puerperal

pyæmia is a complication of septicæmia, and is almost always accompanied by the presence of pus in the veins of the uterus. It is a comparatively rare occurrence, and probably depends on septic embola being impacted in the veins. Metastatic visceral abscesses are secondary to it, while almost all the inflammations of the cellular tissue and of the articulations depend on lymphatic infection, and are not embolic in their origin. ('Medical Record,' No. 1.)

Depaul relates a case of puerperal peritonitis with great tympanites, in which he punctured the colon with great relief to the patient; and, although before the operation she appeared to be dying, she rallied afterwards and was getting well. ('Bull. de la Soc. de Chir.,' May, 1871.)

In the 'Gaz. Méd. de Paris' (Oct. 1871) is contained the report of a case of hæmorrhagic smallpox after labour, which terminated favorably.

Dr. F. A. Kehrer ('Archiv für Gynäk.,' ii, 1, 1871) contributes an elaborate paper on *the morphology of the milk casein*, the chief points of which appear to be contained in the following conclusions:—1. The gland-cells of the mammæ are continually, during the milk preparation, in a state of active division, and break up on the other hand after a preliminary fatty metamorphosis into fat globules and protoplasma particles. 2. The fat globules of the milk are not enclosed in coverings of albumen or casein. 3. The cell-particles (interglobular substance) spring up in the milk serum, and form with it a thin scum. 4. This scum is the emulsion of the fat globules. 5. In fresh milk the formed cell-particles are invisible, by coagulation they show themselves as granules, nuclei, and granule-nuclei-containing flakes. 6. They collect together out of a light basis-substance and granular coagulating casein. 7. The casein is neither soluble in water, nor in the salts of the milk, but is held in it as an ingredient of formed particles.

M. Decaisne, in an important paper communicated to the Academy of Sciences on *the influence of starvation on woman's milk*, concludes that insufficient food always gives rise, within varying proportions, to a diminution in the amount of butter, casein, sugar, and salts, whilst it augments generally that of the albumen. In three fourths of the cases observed the proportion of the albumen was in an inverse ratio to that of the casein under an insufficient diet. The modifications in the composition of the milk, due to a reparative diet, always manifest themselves in a striking manner by the end of four or five days. ('Med. Times and Gaz.,' Nov. 1871.)

Dr. J. G. Wilson records two cases in which the external application of belladonna to the breasts after labour gave rise in four days to a bright scarlet eruption, which appeared first on the face and chest, and then extended all over the body. Other symptoms were present indicating that the patients were under the influence of belladonna. The complete absence of desquamation of the skin, the persistent dilatation of the pupils for some days, and the rapid recovery of the patients show that these were not cases of puerperal scarlatina. ('Glasg. Med. Journ.,' 1872.)

Puerperal Convulsions.—Halbertsma writes ('Med. Centr.,' ix, 27, 1871) on the etiology of eclampsia. Veratrum viride in large doses is recommended as a substitute for bloodletting in puerperal convulsions ('Amer. Journ. of Obstetr,' 1871). Cases of puerperal eclampsia treated by venesection are recorded by Swayne ('Brit. Med. Journ.,' Feb. 1871); and by Jones (ibid., April, 1871). A case of puerperal convulsions successfully treated by chloroform, Ross ('Lancet,' Aug. 1871). Puerperal convulsions treated by hydrate of chloral, Furley ('Edin. Med. Journ.,' Nov. 1871); Geikie ('Canada Lancet,' March, 1871); Starley ('Americ. Practit.,' 1871); Ferris ('Brit. Med. Journ.,' April, 1872). Two cases successfully treated by chloroform are recorded in detail by Dr. E. R. Townsend. In one of the cases there was smart uterine hæmorrhage after delivery, but the bleeding had no effect whatever in controlling the convulsive attacks ('Dublin Quart. Journ.,' Feb. 1871). Dr. Whidborne advises the use of suppositories of chloral hydrate, when that drug cannot be taken by the mouth. ('Lancet,' June, 1871.)

A case of *sudden death* seventeen days after delivery is recorded ('Obst. Trans.,' 1871) by Dr. Playfair. A slight pleuritic attack succeeded labour, and death probably resulted from embolism. The inflammatory complication had apparently produced an increased hyperinosis of the blood above that already existing; and hence inflammatory affections in the puerperal state should be regarded with a greater suspicion and anxiety than at other times.

A case of sudden death seventeen days after delivery was related by Dr. Ringland to the Dublin Obst. Soc. The heart was found small, soft, and flabby, with much fat deposited externally. The pulmonary artery and its two branches were filled with a large though soft clot. The uterine walls were so thin, as almost to resemble the urinary bladder.

Dr. Madden contributes a series of cases of sudden death soon after parturition. ('Amer. Journ. Obst.,' 1871.)

Mr. Bassett relates thirteen cases of *secondary hæmorrhage* coming on between the third and the thirty-second day after delivery. Five were due to the irregular and inefficient contraction of the womb, with clots in its interior; in four cases the hæmorrhage arose from a retained portion of placenta; and the remaining cases were due to retained portion of membrane, fibrous polypus, inversion of the uterus, and imperfect involution. ('Brit. Med. Journ.,' Aug. 1872.)

Dr. Jenks exhibited to the Philadelphia Obstetrical Society a specimen of *placenta succenturiata*, which had been retained for five days after the delivery of the child and of the placenta proper. It was adherent to the uterus, and had evidently been connected with the umbilical cord by a delicate funis of its own, Its presence had given rise to a constant hæmorrhage. ('Amer. Journ. of Obst.,' 1871.)

From a careful microscopical examination of an enlarged, imperfectly involuted uterus, Dr. Snow Beck concludes that the enlargement is more due to the increased size and amount of the "soft tissue" of the uterus than to the increased size of the contractile fibre-cells. Although the blood-vessels are loaded with fluid blood there is no evidence of the

existence of inflammation. This explains the frequent hæmorrhages noticed in such cases. Any local application to be of value should be applied to the entire uterine cavity, as the chief seat of the abnormal state is the body of the uterus. ('Obst. Trans.,' 1871.)

V.—The Infant.

Dr. J. Gregory ('Arch. für Gynäk.,' ii, 1, 1871), after relating several observations on *the weight of infants*, concludes that—(1) All children decrease in weight during the first few days after birth. (2) They begin to lose in weight during the first hours of extra-uterine life. (3) The duration of the decrease is generally two days in healthy, full-time children, brought up at the breast. (4) In children brought up by hand and in the premature the duration of the decrease is from half a day to a day, and from two to three days longer. (5) Full-time children brought up at the breast increase in weight after this directly and tolerably regularly, and generally attain at the end of the seventh day to their original weight. (6) Immature children nourished by the breast have a varying increase, and even on the eighth day usually only make up half their sustained loss. (7) There is generally no actual increase in the first eight days in children brought up by hand. Since the loss is continually in greater proportion, they lose in weight, therefore, also after the beginning of the first increase. This applies to the premature children in this category in a greater degree than to the mature ones. (8) Nutrition is more active in boys than in girls, whence it follows that boys begin to increase comparatively earlier, and that more per cent. of boys than of girls in a similar period exceed their original weight. (9) There is no relation between the falling off of the navel string and the commencement of the increase in weight. (10) Nourishing support to the lying-in woman has a favorable reaction on the child, shortening the period of loss of weight, and rendering the increase more regular and greater.

Wernich, from observations founded on 1889 births confirms the statements of Hecker and Duncan, and says—(1) That the weight of the fœtus increases with the age of the mother till she has attained the age of thirty-three, and that the length of the fœtus increases up to the forty-fourth year. (2) Each new infant outweighs and is larger than the preceding one. (3) Long intervals between the pregnancies are more favorable than short ones. (4) Women who have menstruated early are confined for the first time of a more vigorous child than those in whom menstruation was late in appearing. ('Gaz. Méd. de Strasbourg,' Oct. 1871.)

Stillborn infants (an epistle directed to Dr. C. Ludwig, by Dr. Schultze, Jena, 1871).—The condition of a stillborn infant is, according to Dr. Schultze, in all cases one of asphyxia. The stillborn sometimes present an anæmic, and at others an apoplectic condition, but under both conditions the still birth is one of actual asphyxia. The mass of blood, in the one instance, is insufficient to enable it to take up and convey an adequate amount of oxygen to the medulla oblongata, the excitability of which is, in consequence, reduced, and finally extinguished.

On the other hand, the apoplectic form of asphyxia is when the medulla oblongata is not in a condition to respond to the normal excitors presented to it. The following is the author's general statement of the four pathological conditions, into one or other of which stillborn children are distributable:—(1) A so greatly diminished excitability of the medulla oblongata that, under the normal excitants, the proper nervous influence from it is no longer transmitted to the respiratory apparatus, hence there necessarily results a deficient supply of oxygen to the blood. (2) A deficient oxygenation of the blood, and its necessary concomitant, an abnormal accumulation of carbon in the blood. (3) Constant lessening in the force of the circulation from the slowness of the heart's contractions, and the immediate and secondary consequences, causing what may, in some sense, be considered as a compensatory movement, besides overfilling the heart with blood, directing the flow of the latter towards the thorax. (4) The clogging up, to a greater or less extent, of the trachea with liquor amnii, meconium, slime, and blood. To arouse the suspended vitality of the stillborn who fall within the *first* proposition presents three indications:—To increase the excitation of the medulla, so that the respiratory nerves shall react; to endeavour, by acting upon the peripheral nerves, to excite the action of the respiratory muscles; or to endeavour to reinstate the normal excitability of the medulla. In the cases embraced in the *second* proposition, there is a deficiency of oxygen. Now, after birth this deficiency can be supplied only through the lungs, and hence, in the absence of natural respiration, an attempt must be made to imitate it artificially. In reference to the cases of stillbirth embraced by the *third* proposition, it may be understood that when the infant is born deeply asphyxiated, with very slight action of the heart, while the blood in the capillaries of the lungs is almost stagnant, how little of the circulating mass can, by artificial inflation of the lungs, be brought into contact with oxygen. Hence the increased action of the heart caused by such means is only of temporary continuance. Artificial respiration can only be productive of permanent results when, at the same time, there occurs, as well through the vessels of the lungs as throughout the entire ramification of the aorta, a life-supporting circulation of blood. The artificially excited action of the respiratory organs may, however, become ultimately the cause of the reinstatement of the excitability of the nervous centres, and thus be the means of recalling the normal activity of the respiratory muscles. Resuscitation, in the cases embraced by the *fourth* proposition, is to be effected by the removal of the impediment, by a sucking effort of the operator's mouth applied directly to the mouth of the infant, or through an elastic catheter passed into the larynx, or by a syringe and elastic tube. ('Amer. Journ. of Med. Sci.,' 1871.)

On the colour of the eyes of the newly born.—Dr. Wiltshire ('Lancet,' Feb. 11, 1871) believes that the eyes in newly born chilren are always of a blue colour. It is a slaty, mercurial ointment, or leaden-blue, generally different from the blue colour which obtains in after life. A change is usually observable in the second month. If the eyes are to become "dark," a brownish hue overspreads the leaden

hue, and in time effaces it. Eyes that ultimately become brightly blue gradually clear up, as it were, like the sky after a thunderstorm, and a clear-tinted blue iris is the result. Dr. Wiltshire is inclined to think that all newly born animals have blue eyes. It is stated that a similar observation was made by Ructe, in 1846 ('Wagner's Handwörterbuch der Physiologie,' iii, part 2, 325), and even by Aristotle ('De Gener.,' v, 1).

Guéniot writes on the treatment of fractures of the thigh in newly born infants. In the majority of cases the fracture is situated at the upper half of the bone, and nearly always occurs during an assisted labour, the fœtus presenting by the breech, the operator makes too forcible or ill-directed traction on the fold of the groin. In one case he saw it produced by the application of the forceps to the presenting breech. He describes a gutta-percha apparatus which he has found useful in the treatment. ('Bull. Gén. de Thérap.,' i, 1872.)

Guéniot writes on the treatment of urinary umbilical fistulæ, due to the persistence of the urachus. ('Bull. de Thérap.,' ii, 1872.)

Dr. Littleton ('Brit. Med. Journ.,' Sept. 1872) quotes the statement that between three and four hundred children are annually suffocated by overlaying, and advocates the use of the arcuccio, universally used in Italy. The apparatus bears some resemblance to the cradle adopted to shelter an injured limb, and with it children can be safely laid entirely under the bed clothes in winter without danger of suffocation.

On the etiology of fœtal peritonitis.—Dr. R. Olshausen gives the dissection of a fœtus the subject of peritonitis. The vulva and the vagina were imperfect; the meatus urinarius was not to be detected. Absence of the anus and of the lower portion of the rectum. Moderate distension of the bladder, more considerable of the uterus, and enormous of the lower part of the intestine, with urine. Considerable dilatation of the ureter on each side and hydronephrosis. Connection between the uterus and the bladder through a narrow short canal, and through another, still shorter, between it and the rectum. General peritonitis of old date. The greatest amount of exudation in the neighbourhood of the ovaries and the outer portions of the Fallopian tubes. As regards the malformations, the connection of the uterus with the colon and with the bladder may be considered the rarest, and, as regards the results in this case, the most important one. Not only did the urine collect in the ureters and the kidneys, but also the uterus was filled and distended into a thin bladder, and there was distension of the colon. But the most important point is that the urine passed into the Fallopian tubes, dilated their inner portion, and led to effusion in the pelvis and to general peritonitis, with gluing together of the intestines. ('Archiv f. Gynäk.,' ii, 4, 1871.)

Dr. Jacobi ('Amer. Journ, Obstet.,' 1871) relates a case of *fœtal asymmetry*. When shown to the Obstetrical Society of New York the child was three months old. The two halves of the tongue were not equal in size, the left being thinner than the right, and when the tongue was protruded it deviated to the left. The entire left side of the head, face, body, and extremities, were smaller than the right. Dr. Jacobi believed this condition to be of pre-placental origin. The circulation

well-known odour. The regular contractions of the digestive tube, and especially the glandular secretions, reappear, and this double influence promotes the digestion of the solid parts of food, which had till then resisted. The same result is obtained by presenting directly to the absorption of the stomach phosphate of lime, on the condition that it be soluble and require no labour for its digestion. The phosphate taken into the weakened stomach of persons afflicted with rachitis will undergo no modification. He recommends Dusart's lactophosphate of lime, which is prepared by imitating the action of the gastric juice on phosphates, and which contains the salt completely digested, and consequently capable of being absorbed without requiring any previous labour of the stomach.

Dr. Widerhofer, in some remarks on the differential *diagnosis of slight cases of rickets and of chronic hydrocephalus*, says the points to be attended to are chiefly these. In rickets the form of the head is more or less angular, but there is no special disproportion between the head and the face. The anterior fontanelle may be large, but the sagittal suture is generally closed at eight or nine months. The orbits are normal and there is no prominence of the cornea. Further, some alterations in other parts of the sketeton, *e.g.* beading of the ribs, or some enlargement of the epiphyses of the radius and ulna, will probably be present. In chronic hydrocephalus the skull is inclined to a globular shape; the sagittal suture is open, as well as the fontanelle; the head is large, out of proportion to the face, and there is divergence outward of the temporal bones at their upper part, instead of their usual vertical position. From the pressure of the intra-cranial effusion the upper wall of the orbit tends to become more and more upright, so as to push forwards the eyes and expose the cornea. Further, in rickets, the tendency is to *partial* convulsions, especially spasm of the glottis; in hydrocephalus to *general* convulsions. Lastly, the former is most frequently accompanied by diarrhœa; the latter by constipation. ('Lancet,' March 18, 1871.)

Dr. Ritchie writes on the diagnosis of rickets ('Med. Times and Gaz.,' Jan. 1871), and points out, as the result of numerous observations, that there is a varying fall in the evening temperature in rickets, whereas in tuberculosis there is not only no evening fall, but there is a positive evening rise.

Dr. Sonsino, in a paper on *the physiological dyspepsia for starchy food in infancy*, confirms the opinions of Bidder and Schmidt, Guillot, and Schiff; and concludes that in the generality of mammalia, saliva acquires its digestive power over starchy matter only at a degree of development which, in the larger number of the same animals, is not reached at the time of birth. He then details some experiments made with an infusion of the pancreas of young animals, and states that pancreatic juice in dogs, cats, and rabbits in the first week of life is devoid of any digestive action on starch; and he infers that the same inability of the pancreas to digest starch exists in the early life of man. Experiments made with the enteric juice were not so conclusive. He thinks that an infusion of fresh pancreas might be useful to aid the digestion of starch in infancy; but that good reasons exist for not feeding infants

[illegible]

lomata at the age of six months. Four out of the five vesicles on the child's arm were used, and more than one, possibly all of them, bled somewhat. Mr. Hutchinson deduces the following conclusions from the cases. The blood of a child suffering from inherited syphilis can, if inoculated, transmit the disease with great certainty. The result of such inoculation of blood will be an indurated chancre. If multiple inoculations be practised, multiple chancres may be produced. A period of incubation between the inoculation and the first occurrence of induration about the prick will occur, during which the part may appear perfectly healthy. The period of incubation prior to the first specific induration will usually be about five weeks. It is quite possible for vaccine lymph and blood to be transferred at the same time, and for each to produce its specific results, the effects of the syphilitic inoculation occurring subsequently to those of vaccination. It is quite possible to vaccinate successfully from a syphilitic infant in the stage of utmost potency as regards its blood, without communicating syphilis. In the second series of cases there were unquestionable symptoms of constitutional syphilis in nine children who had been vaccinated from the same child. There were suspicious symptoms in six others, but a certain number of those vaccinated entirely escaped. The vaccinifer was a fine healthy-looking child, but with slight local symptoms indicative of inherited syphilis. ('Medico.-Chir. Trans.,' liv.)

For discussion on syphilitic inoculation by vaccination see proceedings of the Société de Médecine de Lyon. ('Lyon Méd.,' vii, 510—564.)

Mr. Amos Beardesley writes *on vaccination—the advantages of Bryce's test*. There is no *local* appearance which can be relied upon as a guarantee of a constitutional security against smallpox; and in neglecting the constitutional test we are aggravating the distrust in vaccination, degrading the productive power of vaccine lymph, and curtailing one of the greatest blessings ever given by man to man. ('Practitioner,' June, 1871.)

Dr. Farquharson concludes from extensive experience in revaccination, that while it is a perfectly safe operation under ordinary circumstances, care should be taken in its performance on weakly subjects. In these the resulting constitutional disturbance may cause much discomfort, and some efforts should first be made to improve the tone of the general health. ('Lancet,' July, 1871.)

Mr. Stephen Mackenzie relates ('Lancet.' Feb. 1871) several cases vaccinated with lymph dilated with glycerine, in the proportion of forty drops of the latter to the contents of two capillary tubes of vaccine. He thinks that lymph diluted to this extent is as potent as undiluted lymph. A similar view is also expressed by Dr. E. Müller, of Berlin ('Berlin Woch.,' April 17, 1871.), and by Weiss ('Centr. f. Med. Wiss.,' 48, 1871).

Guilland quotes the following case:—A primipara, confined on the 18th of January, was attacked with the eruption of smallpox on the evening of the 20th, forty-eight hours after labour. She died on the fourth day of the hæmorrhagic form of the disease. The infant had been sent away to a nurse the day after it was born. On the 27th Guilland went to vaccinate the child, having been unable to procure

[illegible] similar [illegible] the patient had suffered the same morning and the patient [illegible] in the [illegible]. Another child sucked by the same nurse was [illegible] in the [illegible] and was seized in the night by what [illegible] and died. The nurse presented in the case of Dr. [illegible] the patient during the night of the [illegible] week. These occurrences in the case of Dr. [illegible] have led [illegible] to [illegible] part [illegible] on [illegible] the opposite breast which is [illegible] the seat of disease, has not been frequently used. Dr. [illegible] reports one case in addition of the communication from the [illegible] to the [illegible]. Being prevented by early [illegible], she was successful only in a few cases. (Lyon Méd., Sept. 1871.)

A [illegible] applied to the same breast of [illegible] while the mother was suffering from [illegible] had [illegible] [illegible] in her [illegible]. (Surgeon, Dub. Med. Journ., July 1871.) See a case of [illegible] of [illegible] in [illegible]. (Virchow's Med. Times and Gaz., June, 1871.) See also the case of a [illegible] boy with a [illegible] [illegible], the mother of the same suffering from [illegible]. (Lyon Méd., Oct. 1871.)

Dr. [illegible] writes on *hemorrhage from the kidneys in infancy*. (West. Med. Reporter, xvii., 1871.) It is [illegible] to have severe attacks of [illegible] in infants under two months old. In addition to the appearance of the urine there is pain produced by pressure in the lumbar regions, and there is [illegible] great restlessness. Dr. [illegible] thinks, from post-mortem examination, that the parenchyma of the kidney is not the seat of disease. The young patient's strength should be kept up by good [illegible] and by tonics. Recovery is rare.

The Kidneys of Newly-born Children.—Dr. Kidner believes that [illegible] born children are rather more frequently attacked than others. Early [illegible] of the secretion does not hinder the development of [illegible]. We must, then, abandon the idea that the [illegible] is caused by retention of the secretion, which is not in the [illegible] children. In [illegible] in [illegible] children we find the [illegible] [illegible] in [illegible] parts, [illegible] normal from the [illegible] observed in the [illegible]. Previous [illegible] [illegible] from the [illegible] of the [illegible] of the [illegible] of the [illegible]. What takes place when the [illegible] from the umbilical vein is stopped and permits of increase of [illegible] in the blood. Experiments [illegible] that after compression of the aorta the pressure of the secretion in the [illegible] [illegible] off. Previous [illegible] that [illegible] [illegible] results from [illegible] and stoppage of the [illegible]. The disease commenced usually in the second or third [illegible], and seldom in the first or fourth [illegible] of life. The prognosis is generally good. (See Amer. Journ. of Obstetrics, Nov. 1871.)

Cranial [illegible]. (Gaz. des H., 30 April, 1871.) A case of congenital [illegible] of the [illegible]. Dr. Dawson stated to the New York Obstetrical Society the case of a child at [illegible]. It was the subject of an [illegible] of the skin, [illegible], and a portion of the [illegible] and the [illegible], and which were bound together by [illegible] where the [illegible] sutures were opposed. The diagnosis had not been made during life. (Amer. Journ. of Obstet., Nov. 1871.)

REPORT

ON

MEDICAL JURISPRUDENCE.

BY

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Poisons.

General.—Prof. Goltz,[1] of Halle, has experimented on the absorption and removal of poisons after suspension of the circulation, and has arrived at the following results:—1. In frogs, the hearts of which had been previously ligatured, strychnine nitrate injected into the stomach induced tetanic spasms within fifteen minutes, and the same results ensued when the poison was injected beneath the skin. 2. The poison reaches the spinal cord spite of the ligature applied to the heart, for frogs were fed with the spinal cord of another frog which had been poisoned by the injection of the poison over the muscles of the calf subsequent to the ligature of the animal's heart, and yet tetanus supervened after the lapse of eight hours. 3. The passage of the alkaloid from the region of the calf to the spinal cord is independent of the activity of the striped muscular fibres of the poisoned limb. When the heart was ligatured, the roots of the ischiadic nerve of one side divided in the pelvis, and then the stychnine salt injected into the calf on the same side, tetanus supervened. 4. The blood is the vehicle by which the toxic substance is disseminated, for when frogs were destroyed by strychnine subsequent to ligature of the heart the blood of these poisoned animals was capable of inducing tetanic spasms in other frogs. 5. If a frog's heart be ligatured, and the animal be now poisoned by the introduction of the strychnine salt into the leg, the poison passes into the opposite limb, for if another frog be fed with the muscles from the first poisoned frog the second frog experiences tetanic spasms. 6. The experiment last detailed fails if a dead frog be employed for the strychnine injection in the first instance.—The author is of opinion that the general principles enunciated above are applicable to poisons generally, and states that even after complete interruption of the circulation a poison may pass from one part to another of the *living* body by a process different from the osmosis which takes place in the dead

[1] 'Arch. f. Gesam. Physiol.,' 1871, p. 147.

tissues, and he promises further experiments on the force which renders this translation possible.

Elimination of poisons.—Dr. Anstie* combats vigorously the prevalent views with respect to the supposed elimination of poisons, animal, vegetable, and mineral. He appears to be of opinion that there is no tendency in the unaided animal organism to get rid of poisons, and that remedies administered with the object of assisting elimination are, as a rule, powerless.

Antagonism of Poisons.

The literature of this topic is unusually interesting.

Antagonism between physostigmine and atropine. A very elaborate research on this subject, full of valuable results, has been completed by Dr. Fraser.† The author first reviews previous experiments on physiological antagonism, viz. between atropine and hydrocyanic acid (Preyer), between atropine and muscarine (Schmiedeberg and Koppe), between physostigmine and strychnine, and between physotigmine and chloral (Bennett), and comes to the conclusion that, although in many cases the *à priori* reasons in favour of the existence of a lethal or of a more or less general antagonism are extremely plausible, the experimental data by means of which it has been attempted to establish the reality of the antagonism are, probably without exception, imperfect, and therefore insufficient to do so. His own experiments were made with a view to determine the existence of a physiological antagonism between physostigmine and atropine, and the limits of the same. Physostigmine was administered either in the form of an alcoholic extract or of the sulphate of the active principle (curarine); preparations chiefly made by himself, but in some cases with those manufactured by Messrs. T. and H. Smith, of Edinburgh. The atropine was administered in the form of sulphate. The subjects of experiment were chiefly rabbits weighing about three pounds, in a state of perfect health, and during digestion. In some cases dogs were used. The plan of the experiments was as follows. In the first place the minimum fatal doses for rabbits of the extract of physostigmine and of the sulphate of physostigmine respectively were determined by a number of preliminary experiments, so that, on the weight of the animal being ascertained, it was an easy matter to be certain of the dose of the particular preparation that could kill them. Then in those experiments in which recovery followed the administration of a dose of atropine given in combination with a dose of physostigmine equal to, or in excess of, the minimum fatal, the animal used was killed many days afterwards, and, when the effect of the two substances had completely disappeared, by a dose of physostigmine less than or only equal to that from which it had previously recovered. Therefore, when the administration of atropine prevented an otherwise fatal dose of physostigmine from causing death, a perfect demonstration was obtained of the power of atropine to produce some physiological action or actions that counteracted some otherwise lethal action or actions of physostigmine.

* 'The Practitioner,' viii, pp. 161, 289, 356.

† 'Trans. Roy. Soc. Edin.,' 1872, xxvi, pp. 529—713.

The administration of the substances was effected by subcutaneous injection. The following is a brief summary of the first series of experiments:

1. The minimum lethal dose for rabbits of the extract of physostigmine is 1·2 grain, and that of sulphate of physostigmine 0·12 grain, for every three pounds' weight of an animal.

2. The influence that is exerted by atropine upon the lethal action of extract of physostigmine and sulphate of physostigmine was examined in rabbits, and a description is given of the experiments performed for the purpose. As an instance we quote the following:—A rabbit weighing 2 lbs. 15½ ozs. received 0·3 grain of sulphate of atropine, and in five minutes afterwards 1·2 grain of extract of physostigmine. Recovery took place.

Ten days afterwards the same rabbit, now weighing 3 lbs., received 1·2 grain of extract of physostigmine. Death occurred in twenty-two minutes. Many other similar experiments are related with a like result.

3. Several experiments are also described in which the influence exerted by atropine upon the lethal action of extract of physostigmine and sulphate of physostigmine were examined in dogs also. As an example the following will suffice:—A dog weighing 11 lbs. received 0·15 grain of sulphate of atropine, and five minutes afterwards 0·9 grain of sulphate of physostigmine. Recovery took place.

Ten days afterwards the same dog, now weighing 11 lbs. 4 oz., received 0·3 grain of sulphate of physostigmine. Death occurred in seventeen minutes.

These experiments clearly demonstrate that atropine is able to counteract the lethal action of physostigmine in rabbits and dogs, but whether it will do so in other animals can as yet only be surmised.

4. The influence exerted on the lethal action of physostigmine by atropine injected directly into the veins, in which case it acts with greater effect; the physostigmine, being injected subcutaneously, was the subject of another set of experiments, as an example of which we give the following:—A rabbit weighing 4 lbs. received 2 grains of extract of physostigmine, and five minutes afterwards 0·03 grain of sulphate of atropine by injection into a facial vein. Recovery took place.

Seven days afterwards the same rabbit, now weighing 4 lbs. 3 oz., received 1·7 grain of extract of physostigmine. Death occurred in twenty-three minutes.

The next part of the research was made with a view to determine whether the counteracting influence of atropine upon the lethal action of physostigmine is successful only within a definite range of doses, and whether this range can be determined experimentally. For this purpose three sets of experiments were made. The chief objects of the first two of these were to ascertain the maximum dose of physostigmine that can be successfully antagonised by atropine, and the range of doses of atropine that can successfully antagonise lethal doses of physostigmine. The chief objects of the third series was to ascertain within what limits of time between the administration

of the two substances successful antagonism occurs. The following are the results obtained:

I. *Experiments with the minimum lethal dose of physostigmine.*—While 0·005 grain of sulphate of atropine is a dose insufficient to prevent death, 0·009 grain is one sufficiently large to do so; and any dose of sulphate of atropine ranging within the wide limits extending from 0·009 grain to 5·5 grains is able to prevent the fatal effect of this dose of physostigmine; but if the dose of sulphate of atropine amounts to 5·3 grains the region of successful antagonism is left and death occurs.

Experiments with one and a half times the minimum lethal dose of physostigmine.—In these it appears that while 0·015 grain of sulphate of atropine is a dose too small to prevent the occurrence of death after a dose of physostigmine one and a half times as large as the minimum lethal, 0·02 grain is a dose sufficiently large to do so; that doses of sulphate of atropine ranging from 0·02 grain to 4·1 grains are able successfully to counteract this dose of physostigmine, and that death occurs when the dose of sulphate of atropine is so large as 4·3 grains.

Experiments with twice the minimum lethal dose of physostigmine.—The range is from 0·02 gr. up to 3·2 grains sulphate of atropine. Beyond and below this range death occurs.

Experiments with two and a half times the minimum lethal dose of physostigmine.—The range here is from 0·025 to 2·2 grains of sulphate of atropine. Beyond and below this death occurs.

With three times the minimum lethal dose of physostigmine.—In this case the range of successful antagonism lies between 0·06 and 1·2 grain of sulphate of atropine. Beyond and below these limits death occurs.

With three and a half times the minimum lethal dose of physostigmine.—Here the range is a very limited one, extending from 0·1 to 0·2 grain of sulphate of atropine.

With four times the minimum lethal dose of physostigmine.—In this case no successful antagonism can be exerted by atropine, as death invariably ensues.

The results of these experiments are all represented diagramatically. In another series of experiments the interesting fact is brought out that death may be likewise produced by the combined non-lethal doses of the two substances. When sulphate of atropine is administered five minutes before half the minimum lethal dose of phyostigmine, death occurs if the dose of the former substance be 9·8 grains or more. This result is a very remarkable one when it is considered that a very decided counteraction is exerted by much smaller doses of atropine against the poisonous action of doses of physostigmine greatly in excess of the minimum lethal, and that the minimum lethal dose of sulphate of atropine is about 21 grains.

II. *Determination of the limits of antagonism when atropine is administered five minutes after physostigmine.*

Experiments with the minimum lethal dose of sulphate of physostigmine (*0·12 gr. per 3 lbs. weight*).—The range of antagonism lies between 0·02 and 2·5 grains of sulphate of atropine.

With one and a half time the minimum lethal dose.—The range lies between 0·05 and 2·1 grains of atropine.

With twice the minimum lethal dose the range is from 0·1 to 1·2 grain of atropine.

With three times the minimum lethal dose the range is still more limited, recovery taking place only in one place in which 0·16 grain atropine was administered.

Doses three times more than the minimum lethal dose of physostigmine cannot be successfully antagonised by atropine.

Another set of experiments shows that the smallest quantity of atropine that, in conjunction with half the minimum lethal dose of physostigmine administered five minutes beforehand, is sufficient to cause death, is about ten grains per three pounds' weight of rabbit.

III. *Determination of the influence of the interval of time between the administration of the two substances upon the dose of atropine required to counteract a given dose of physostigmine.*

The plan of this third series of experiments was that the dose of physostigmine was constant (one and a half time the minimum lethal dose, viz. 0·12 sulphate of physostigmine per 3 lbs. weight of animal), while the dose of atropine and the interval of time between the administration of the two substances varied. The experiments are—(*a*) those in which the two substances were simultaneously administered; (*b*) those in which atropine was administered after physostigmine; (*c*) those in which atropine was administered before physostigmine.

(*a*) In these the range of successful antagonism lies between 0·05 and 3·3 grains of atropine.

(*b*) The results of administering atropine *five minutes* after physostigmine have already been given. *Ten minutes afterwards:* the range in this case is from 0·3 to 2·5 grains of atropine. *Fourteen minutes afterwards:* only one experiment was made, in which 0·3 grain sulphate of atropine was successful. *Fifteen minutes afterwards:* death is prevented by doses of atropine ranging from 0·3 to 1 grain. Beyond this interval atropine does not antagonise physostigmine.

(*c*) *Five minutes before:* the range of successful antagonism is from 0·05 to 3·7 grains of atropine.

Another set of experiments with varying doses of atropine, administered at different intervals before the minimum lethal dose of physostigmine, shows that 0·05 grain exerts successful antagonism with an interval of twenty minutes or less, but not if the interval be prolonged beyond this.

Doses of half a grain of atropine antagonise one and a half time the minimum lethal dose of physostigmine, if administered thirty minutes before this, but not if the interval be longer. Doses of one grain and a half antagonise physostigmine within an interval of sixty-five minutes. Three grains of atropine administered an hour and thirty-five minutes before the same dose of physostigmine successfully antagonise it, but not if the interval is prolonged to one hundred minutes or more. Three grains, however, is near the maximum limit of the range in the case of simultaneous administration, and, accordingly, not far from the limit in

the case where atropine is administered five minutes before physostigmine.

Another set of experiments shows this remarkable result, that if four and a half grains of atropine are given ten minutes before the physostigmine, death occurs, but recovery takes place if the atropine is administered fifteen or twenty minutes before. When five grains of sulphate of atropine are administered before the same dose of physostigmine death occurs if the interval of time be one of fifteen or twenty minutes, but recovery generally occurs if the interval be one included within the wide limits extending from twenty-five to one hundred and seventy-five minutes; while death, again, occurs if the interval be one so great as three hours.

A very interesting chain of events is therefore presented, for it is seen that certain actions, produced with sufficient intensity to cause death when the two substances are simultaneously administered, lose the power of doing so when the atropine is administered at an interval of twenty-five minutes before the physostigmine; while the now unobscured counteraction of the lethal effect of this dose of physostigmine which makes the loss perceptible, persists till the interval is increased to three hours.

The whole of this remarkable investigation is tabulated and illustrated by diagrams. The one substance is shown in the most conclusive manner to exert a remarkable and decided physiological antagonism to the other, and that the fatal effect of three and a half times the minimum lethal dose of physostigmine may be prevented by atropine. "The existence of such an antagonism encourages the hope that the power of directly counteracting disease is far from unattainable, and it supplies a strong incentive to efforts designed to determine the conditions of disease and the actions of remedies with an exactitude sufficient to show how the remedial action may be applied as a counteracting influence to the diseased condition."

Antagonism of various poisons.—Prof. Reese,* of Pennsylvania, has investigated the following supposed antagonistic poisons:—Morphine and atropine, morphine and hydrocyanic acid, morphine and strychnine, morphine and aconitine, morphine and arsenic, strychnine and tobacco, strychnine and aconitine, strychnine and tincture of chloride of iron, strychnine and tincture of iodine, strychnine and Calabar bean, and atropine and Calabar bean.

The antagonism between hydrocyanic acid and morphine was found to be very slight, if, indeed, it exists at all. The positive antagonism of atropine and morphine could not be satisfactorily demonstrated; on the contrary, the converse would seem rather to be proved by one experiment, the morphine intensifying at least one portion of the atropine impression—its paralytic effect. Strychnine and hydrocyanic acid can in no sense, he thinks, be considered antagonistic; nor can strychnine and tobacco be regarded as true antagonistic poisons, although, so far as relates to the human subject, we have the testimony of some authorities that tobacco does really appear to antagonise the toxic influence of strychnine. In one experiment tincture of chloride of iron seemed

* 'Amer. Journ. Med. Sc.,' lxi, pp. 133, 373.

slightly to modify the effects of strychnine, without, however, preventing a fatal result; but another experiment showed that the supposed antidote has no proper antidotal power over the alkaloid. There was no good evidence obtained of an antagonism between strychnine and tincture of iodine. When strychnine and aconitine were given in combination the symptoms that followed were purely those of strychnine poisoning.

Antagonism between atropine and morphine.—Firmy* relates a case in which he injected subcutaneously, for neuralgia, a solution containing one twenty-fifth of a grain sulphate of atropine, combined with a quarter of a grain of acetate of morphia. In ten minutes after, symptoms of acute atropine poisoning resulted, viz. dilated pupils, dryness of the throat, rapid pulse, frequent respiration, delirium, and unconsciousness, causing great alarm. Twenty minutes after the commencement of the symptoms of intoxication one third of a grain of morphine was injected, with the result, in five minutes, of entirely changing the character of the symptoms and inducing tranquil sleep, lasting the whole night. Next day the patient was quite well.

Dr. A. Little† asserts that the antagonism between belladonna and opium is incontestably established, and brings forward a series of cases, old and new, collected chiefly by American physicians in support of this view. In one case of an infant poisoned by opium, tincture of belladonna was successfully administered in doses of fifteen drops twice repeated. In another case, of an adult who had taken twelve to fifteen grains of sulphate of morphine (the patient had been in the habit of taking morphia in small doses), extract of belladonna was given with apparently excellent results, five grains of the extract having been given in divided doses. Administered after opium, belladonna fails to exercise its full influence on the pupil. It is indubitable that belladonna neutralizes or counteracts some of the effects produced by morphine, but it is more doubtful whether the lethal action of opium is prevented by the administration of belladonna.

Strychnine as an antidote to chloral.—M. Oré‡ finds that—1. Not only does injection directly into the veins of 1-60th grain of strychnine (a fatal dose for a rabbit of 4½ lbs.) fail to prevent the animal succumbing to a drachm of chloral, but the presence of the alkaloid is not manifested by any spontaneous characteristic phenomenon. 2. The injection into a vein of 1-24th grain of strychnine occasions spontaneous and well-marked convulsions. 3. In proportion as the dose of strychnine is augmented (1-18th grain), death supervenes with greater rapidity, and the poisonous property of the alkaloid becomes more marked. 4. If the dose be increased beyond 1-9th grain, the action of the chloral is then completely masked, and the animal dies from strychnine-intoxication. The antidote thus becomes a toxic agent. 5. Whenever it is attempted to combat the effects produced by a fatal dose of chloral by means of strychnine, introduced either subcutaneously or into a vein, the animal always succumbs; most frequently in conse-

* 'Dublin Journ. Med. Sc.,' July, 1872, p. 38.
† 'Philad. Med. and Surg. Rept.,' xxiv, p. 334.
‡ 'Gaz. Méd. de Paris,' 1872, p. 401.

quence of the action of the former, sometimes, however, of the latter agent. 6. Hence strychnine is not an antidote for chloral.

Physostigmine and strychnine.—Ashmead* describes a case of successful treatment of strychnine poisoning by means of extract of physostigmine. A drachm of the pharmacopœial solution of strychnine had been swallowed. Recovery took place after the administration of a little more than two grains of the extract of physostigmine.

Dr. J. St. Clair Gray† proposes nitrite of amyl as an antidote for strychnine.

Aconite and digitalis.—Dobie‡ reports a very interesting case in which recovery took place from a poisonous dose of tincture of aconite treated by the subcutaneous injection of tincture of digitalis. The patient, when seen, was pulseless and apparently at the point of death. Twenty minims of the tincture of digitalis were first injected subcutaneously. Galvanism was also applied to the cardiac region. At the end of twenty minutes the patient was able to swallow, when he received along with brandy and ammonia a teaspoonful of the tincture. Improvement followed, and the mixture was repeated twice within an hour. After this the patient was out of danger. He subsequently got quite well, and confessed he had swallowed an ounce of Fleming's tincture of aconite. The case is looked upon by the author as proving that digitalis is a cardiac stimulant, and not a cardiac depressant, as some suppose.

Phosphorus poisoning.—Dr. Lichtenstein§ reports a case in favour of the views of Personne, Andans, Köhler, and others, that oil of turpentine is an antidote for poisoning by phosphorus. Dr. Schultzen‖ states, that in an experience of thirty or forty cases nearly one half terminated favorably, notwithstanding that no oil of turpentine was given. Dr. A. Welter¶ has an elaborate monograph on phosphorus poisoning generally, but the chief point in his paper is that of treatment. He approves of the treatment by oil of turpentine, but states that the rectified oil is unreliable. He recommends the French oil of turpentine. We may remark that five kinds of the oil are met with in commerce—French, English, German, Venetian, and Templin oil, which differ considerably in composition and optical rotatory power. The following is Vetter's course of treatment. In acute cases he first gives sulphate of copper in emetic doses every ten or fifteen minutes till vomiting is produced. No harm is done, but rather the reverse, if several doses have to be given before emesis supervenes, for the copper neutralizes the phosphorus. After thorough vomiting the Ol. Tereb. Gallicum is given in 40-minim doses every fifteen minutes, mucilage being the medium employed for the exhibition of the remedy. Next day magnesia is given.

G. H. Roessingh** makes some observations on the treatment of

* 'Edin. Med. Journ.,' 1872, p. 235.
† 'Glasgow Med. Journ.,' Feb., 1871, p. 188.
‡ 'Brit. Med. Journ.,' Dec., 1872, p. 682.
§ 'Berl. Klin. Wchnschr.,' 1870, No. 33.
‖ 'Centralbl. f. d. Med. Wissensch.,' Oct. 8, 1870.
¶ 'Virchow's Arch.,' liii, p. 168, 1871.
** 'Schmidt's Jahrb.,' clvi, p. 19.

acute phosphorus poisoning with copper and oil of turpentine. His experiments were made on rabbits. The conclusions he has arrived at are as follows:—(1) The statements of Bamberger, that oil of turpentine as an antidote to phosphorus is inert, are erroneous; (2) all the animals which were treated with turpentine, after having been poisoned with phosphorus, lived longer than those which received copper; (3) the dose of phosphorus which could be borne when turpentine was given was much greater than that where copper was employed as an antidote; (4) the temperature never rises so high when turpentine is administered as when copper is used; (5) owing to the great rise in temperature animals poisoned with phosphorus lose weight more rapidly when treated with copper than when treated with turpentine. In addition to these facts, the animals which were treated with copper were much stronger physically than those treated with turpentine. As an example of the influence of turpentine, he gives the following experiment. To one rabbit 25 minims of phosphoretted oil along with 80 minims of olive oil were given, to another the same dose of phosphorus along with 80 minims of French oil of turpentine. The first died, the latter remained quite well. He regards turpentine as the best antidote to phosphorus.

Tissue changes in phosphorus poisoning.—Voit* and Bauer investigate phosphorus poisoning in relation to the fatty degeneration of the tissues and organs which it causes. By giving phosphorus to dogs deprived of food for several days they found that the ordinary symptoms of phosphorus poisoning and fatty degeneration of all the organs were produced. The fat could not have come from the food, as the animals were in a state of starvation, nor from the other parts of the body, as there the fat had all disappeared for the same reason. It must therefore have been produced by the decomposition of the albuminous tissues. They show by experiment with Voit's respiration apparatus that in phosphorus poisoning the fatty degeneration is due both to diminished oxidation of fat and to its increased production from the transformation of albumen. They find with Schultzen and Riess that the urea is increased, but they found no abnormal products in the urine, except in fatal cases a little sarcolactic acid. They did not find leucin or tyrosin in the urine, but found these abundantly in the liver, heart, and blood of dogs poisoned with phosphorus. The nitrogenous products of the decomposition of albumen are therefore converted into urea in all cases in the dog, and in slighter cases of phosphorus poisoning in man. In severe cases in man the decomposition is imperfect, and the higher products of decomposition are excreted. They think that the greater rapidity of degeneration in acute yellow atrophy of the liver is the chief difference between this disease and phosphorus poisoning.

Corrosive Poisoning.

Sulphuric acid.—Cases of fatal poisoning by this substance are related by Malmsten and Schauenburg.†

* 'Journ. Chemical Soc.,' N. S., ix [xxiv], p. 946; 'N. Rep. Pharm.,' xx, p. 340.
† 'Schmidt's Jahrb.,' clv, p. 7.

Nitric acid.—Stevenson* relates a case of suicidal poisoning with about three ounces of nitric acid. Death resulted in seventeen hours. In this case there was perforation of the stomach and ulceration of the colon. The perforation apparently occurred after death or just before it. The ulceration of the colon may have pre-existed.

Other cases are reported by Malmsten,† and by Dougall.‡

Hydrochloric acid.—Fatal cases of poisoning by hydrochloric acid are detailed by Drs. G. Johnson,§ Paul,‖ and Nager.¶

Ammonia.—Stevenson** relates a case of poisoning by a teaspoonful of the strong liquor ammoniæ, sp. gr. ·88. Death supervened quite suddenly, without asphyxia.

Castan†† describes the symptoms resulting from the inhalation of ammonia vapours.

Caustic potash.—Nager‡‡ describes a case of poisoning by caustic potash which proved fatal in twenty-two hours under symptoms of lobular pneumonia.

Nitrate of silver.—T. Scattergood§§ gives details of a case of poisoning by nitrate of silver. A student, while applying a stick of lunar caustic to the throat of a fifteen-months child, accidentally let the piece drop out of his fingers, and it was swallowed by the child. The piece was three quarters of an inch in length. Vomiting of the contents of the stomach immediately followed. Large quantities of common salt were given, vomiting occurring repeatedly. Diarrhœa set in and convulsions, under which the child died, six hours after the commencement of the symptoms. The chief post-mortem appearances were corrosion of the great curvature of the stomach and superficial corrosion of the duodenum and commencement of the jejunum. No nitrate of silver was found in the contents of the stomach, as it had all been decomposed by the antidote.

Chronic lead poisoning.—Heubel‖‖ has made chronic lead poisoning the subject of an experimental research, with special reference to the theories of Henle and others, that lead exerts a specific action on the pale and striated muscular fibres. Analysis of the viscera of four dogs which died under symptoms of eclampsia saturnina showed that in chronic lead poisoning the bones contain the largest quantity of lead, next the liver and the kidneys. The central nervous organs contained less, but a greater quantity than the muscles, intestines, and blood, &c. He therefore denies a specific affinity of the muscles for lead. That the symptoms of lead poisoning are due to spasm of the blood-vessels, as stated by Henle and Hitzig, he considers disproved by the state of the pulse during an attack. That it acts directly on

* 'Guy's Hosp. Rep.,' 3rd ser., xvii, p. 223.
† 'Schmidt's Jahrb.,' clv, p. 7.
‡ 'Glasgow Med. Journ.,' 1872, May.
§ 'Brit. Med. Journ.,' 1872, p. 221.
‖ 'Bull. Gén. de Thérap.,' Oct. 20, 1872, p. 364.
¶ 'Arch. d. Heilk.,' 1872, p. 213.
** 'Guy's Hosp. Rep.,' 3rd ser., xvii, p. 225.
†† 'Montpellier Med.,' Nov. 1871, p. 577.
‡‡ 'Arch. d. Heilk.,' 1872, p. 213.
§§ 'Brit. Med. Journ.,' 1871, p. 527.
‖‖ 'Virchow und Hirsch's Jahresber.' for 1871, i, p. 316.

the pale and striated muscular fibre is very unlikely, considering that it causes cramp in one set, and paralysis of the other. He thinks the colicky pains cannot be due to pressure of the contracted muscular fibres on the ends of the sensory nerves. The obstinate constipation he attributes to abnormal irritation of the splanchnic nerve, which inhibits peristaltic action. If the peristalsis were really increased in colic it ought to lead to diarrhœa rather than constipation. To the irritation of the splanchnic he likewise attributes by reflex action the slowing of the pulse and diminution of the urine observed during the attacks. The rapid atrophy of the muscles in lead poisoning he attributes to general interference with nutrition which lead causes in a marked degree, and partly to the paralysis itself, which he attributes to direct action of the poison on the intra-muscular ends of the nerves, and not on their central ends. The nerve tissues have a special affinity for lead. To its action on these, both in their central and peripheral parts, he attributes the symptoms of chronic saturnine poisoning, and the repeated attacks he regards as caused by the occasional absorption of the lead into the blood from the organs in which the poison is deposited. That lead does not exert a desiccating effect on the tissues, as supposed by Falk and Hitzig, he disproves by experimental analysis. The symptoms of encephalopathia saturnina, both acute and chronic, he attributes to direct deposition of lead on the brain. Eclampsia saturnina he refers, with Traube and Rosenstein, to capillary anæmia of the brain. He does not think, however, with Rosenstein, that this anæmia is due to direct action on the vessels, but to œdema of the brain, which is generally found, exerting compression on the vessels, and in cases where œdema is not marked to the diminished diuresis giving rise to a uræmic condition from accumulation of the urinary constituents in the blood. The diminished diuresis does not seem to act by causing an accumulation of lead in the system, as only traces of lead are excreted through the urine.

Sulphate of copper.—Maschka* relates a case of suicidal poisoning with sulphate of copper. Death ensued in three days. Among other symptoms jaundice occurred, a symptom which has likewise been observed occasionally by others. Maschka attributes it to fatty degeneration of the liver, as in arsenic and phosphorus poisoning.

Sulphate of zinc.—Well-recorded cases of poisoning by white vitriol are, perhaps, rare. Tardieu and Roussin† record a very instructive case, which terminated fatally. The remarks which accompany the paper are well worthy of perusal, though they are too long for useful abstraction.

Carbonic oxide.—Zuntz‡ investigates the question whether the carbonic oxide compound with hæmoglobin is a fixed compound or not. In opposition to commonly received opinions as to the toxic action of this gas, Donders has recently stated that carbonic oxide may be expelled from blood saturated with this gas by means of indifferent gases, such as oxygen, hydrogen, or carbonic acid. Naurocki and Pokrowsky deny

* 'Wien. Med. Wochensch.,' 1871, No. 26.
† 'Ann. d'Hyg.,' xxxvii, p. 329.
‡ 'Pflüger's Archiv. f. Physiologie,' v, 584.

the possibility of separating it from blood by means of the vacuum. Zuntz, however, has succeeded, by Pflüger's gas pump, in extracting the carbonic oxide. The chief point in the research is that the gas is only given off fitfully and by repeated exhaustions of the receiver. His experiments account for the statements that carbonic oxide cannot be so removed from blood, as the process was supposed to be finished after the first exhaustion. These results must modify commonly received opinions regarding carbonic oxide poisoning. There is no need to suppose that the carbonic oxide cannot be expelled as such, but requires oxidation into carbonic acid. So long as the heart beats there is reason to hope that, by means of energetic artificial respiration, the blood may be again restored to its normal condition.

Podolinski* confirms the statements of Donders and Zuntz, and shows, in addition, that not only may carbonic oxide be expelled from blood by indifferent gases, but that nitric oxide comes under the same category. Nitric oxide may be expelled from its hæmoglobin compound by means of indifferent gases, such as hydrogen. The oxygen, carbonic-oxide, and nitric-oxide hæmoglobin compounds are thus in agreement with each other. Oxygen is most easily expelled, next carbonic oxide, and lastly nitric oxide. Each gas can be more easily expelled by the one immediately following than by an indifferent gas, and each, again, can likewise be more easily expelled by the one immediately preceding than by any other indifferent gas.

R. and R. S. Turner† contribute a very interesting account of the symptoms and post-mortem appearances in several cases of carbonic oxide poisoning, resulting from the combustion of coal and peat in closed chambers.

Oxysulphide of carbon.—Dr. S. Radziejewski,‡ working in Liebreich's laboratory, has investigated the physiological action of this gas, discovered in 1867 by Than. Oxysulphide of carbon appears to be widely distributed in nature, giving to many sulphuretted waters their peculiar sweet taste and aromatic odour. It is also a probable constituent of the gases evolved in volcanic districts, and is, perhaps, given off during the putrefaction of organic substances containing sulphur. Its composition is represented by the formula COS; it is, in fact, intermediate between carbonic acid and bisulphide of carbon. It is absorbed by water, and slowly decomposed by this into carbonic acid and bisulphide of carbon. The gas produces in animals toxic effects, which resemble those observed by Rosenthal and Kaufmann in intoxication by sulphuretted hydrogen. Radziejewski supposes that oxysulphide of carbon absorbed into the blood splits up, in conjunction with water, into carbonic acid and sulphuretted hydrogen, a decomposition which takes place, as we have already stated, outside of the body. To this view there are, however, some objections. The oxysulphide is less soluble in dilute alkaline solutions (and hence in the blood) than in water, and even in this latter the decomposition of the gas is very tardy, whilst the oxysulphide is more rapid in its toxic actions than sulphuretted hy-

* 'Pflüger's Archiv f. Physiologie,' vi, p. 553.
† 'Edin. Med. Journ.,' March, 1871, p. 106.
‡ 'Virchow's Arch.,' liii, p. 370.

drogen. Notwithstanding that oxysulphide of carbon is a chemical curiosity, it is so widely distributed in nature that its poisonous action is a point of much interest.

Nitrous oxide.—Purcell* reports a case of death from the inhalation of nitrous oxide. A woman, 20 years of age, apparently healthy, died suddenly after four teeth had been extracted, while under the influence of nitrous oxide. The cause of death was supposed to be asphyxia. Little congestion of the lungs was found, however, and shock seemed to be the real cause of the fatal result.

Carbolic acid.—The toxicology of this substance, now so extensively used in medicine, has of late received much attention,† and fatal cases have frequently resulted from its administration either by accident or for the purpose of self-destruction. Its use as a remedial agent has also been put to more rigid and extended tests.

Salkowski found carbolic acid to be useless as a remedy in smallpox. In gangrene of the lungs it was more successful when given in the form of pills. If given in the liquid form, the solution must be highly dilute, for a one per cent. solution causes thickening of the stomach. The remedy was found to be useful in gastric affections. The use of the pure diluted acid never causes pain, nausea, or vomiting. This observer has also carefully inquired into the physiological effects of carbolic acid, and his results are of great interest. When injected into the blood carbolic acid produces both local and general paralysis, and the muscles penetrated by the substance shrink and their fibres lose their electric excitability. When injected the heart's beats decline in frequency to nearly one half. Convulsive movements are also set up, simulating those produced by strychnine, and these may be excited in the upper extremities after the prolonged therapeutical employment of carbolic acid as a remedy. The following is the cause of the symptoms observed in rabbits:—A few minutes after the administration of the acid fibrillary quiverings of the muscles may be noted, then more distinctively convulsive movements. The animal continues to run about actively, but the tremors increase in severity. Respiration becomes slow and the animal becomes restless. The limbs gradually lose their power, and eventually the rabbit falls on its side. In endeavouring to rise, clonic spasms, salivation, and dilatation of the pupil are excited. Sensibility is diminished, and with lethal doses of the phenol gradually diminishing tonic and clonic spasms are excited. The urine is seldom tinged with blood, nor is it albuminous. The detailed course of symptoms appears to be dependent on an action of the poison upon the central nervous system, and must not be confounded with the local paralysis at first produced by injection of phenol.

Carbolic acid is quickly absorbed into the circulation, and rapidly excreted, so that there is no fear of its exciting a cumulative effect. A part of it is oxidized in the circulation into oxalic acid. The dark colour of the urine so frequently observed after the use of carbolic acid ensues as well after the internal use as after the external applica-

* 'Phil. and Med. Surg. Rep.,' 1872, p. 343.

† 'Arch. f. Physiol.,' v, pp. 335 and 470; 'Deut. Klin.,' 1870, p. 341, *et seq.*, 1871, p. 25, *et seq.*; 'Schmidt's Jahrb.,' clv, p. 272.

tion of the substance, and is attributed to oxidation of phenol in the kidneys, but from the intensity of colour of the urinary secretion no conclusion can be drawn as to the saturation of the organism with the remedy, which Salskowski thinks to be combined in the urine with an alkali. The above-described symptoms of phenol intoxication are better tests of the saturation of the body with carbolic acid than is the colour of the urine.

Bromine water forms no test of the presence of carbolic acid in the urine, for it fails to detect that substance in the normal urine.

Hoppe-Seyler found the symptoms of phenol intoxication ensuing on the application of a concentrated aqueous solution of the agent to the abdomen of animals to agree pretty closely with those cited by Salskowski. Hoppe-Seyler was enabled to detect phenol in the blood, liver, kidneys, and brain, after death from its administration, and, above all, in the brain in much larger quantities than in the other viscera. It would hence appear that phenol accumulates in the central organs of the nervous system after the manner of anæsthetics. (As carbolic acid is *not* an acid, it is very desirable that its scientific name, *phenol*, should be substituted for the term carbolic acid.—Ed.)

Several fatal cases of poisoning by carbolic acid are reported, both suicidal and accidental. Jeffreys and Hainworth* give details of a case of suicide in a man, aged 55 years, who swallowed from half an ounce to an ounce of commercial carbolic acid. Death resulted in fifty minutes. A. Ogston† relates a case of a man, 45 years of age, who died thirteen and a half hours after swallowing by mistake for spirits an ounce to two ounces of phenol. After death the smell of carbolic acid was distinctly perceptible in the ventricles of the brain, the bladder, blood, and organs generally. Zimm‡ gives a similar case, where from one to one and a half ounce of the commercial acid was taken in mistake for cognac. Death resulted in sixty hours after swallowing the poison. White§ observed dangerous effects, not proving fatal, resulting from the application of carbolic acid in necrosis of the tibia.

Hydrocyanic acid.—Preyer‖ has published perhaps the most elaborate and complete monograph on the actions of the above poison ever issued, and has arrived at conclusions the importance of which can scarcely be exaggerated. A most valuable index of the bibliography of the subject is added.

Preyer divides the symptoms exhibited during the course of a fatal case of poisoning by prussic acid into three stages—a preliminary stage, before the animal falls; a convulsive stage, ending in collapse; and a paralytic or comatose stage. During the first or preliminary stage the breathing is rendered laborious and the frequency of the respirations diminished, whilst during the second or convulsive stage the respirations are diminished to an extraordinary extent. In the last, the paralytic or comatose stage, either the respirations undergo a

* 'Med. Times and Gaz.,' 1871, i, p. 423.
† 'Brit. Med. Journ.,' 1871, p. 116.
‡ 'Virchow und Hirsch's Jahresber. f.,' 1871, i, p. 337.
§ 'New York Med. Gaz.,' p. 274.
‖ 'Die Blausäure' (pamphlet).

steady and rapid diminution in frequency until respiration entirely ceases, or they undergo a temporary exaltation in frequency as compared with the previous stage, but then diminish, and ultimately cease. If during the stage of collapse the number of respirations exceeds the normal amount, this is an unfailing sign of speedy recovery. The convulsions of hydrocyanic acid intoxication are, as regards their cause and course, identical with those produced by strangulation, only they are more intense. Vomiting and the peculiar cry were found to be very inconstant symptoms of poisoning by hydrocyanic acid. If the poison be received into the blood in quantity considerably greater than that required to produce death, the animal dies either from direct paralysis of the heart or from that in conjunction with paralysis of the lungs. In warm-blooded animals the first stage of complete intoxication lasts from one second to fifteen minutes, commonly half a minute; the second stage from a few seconds to a few minutes, usually half to one minute; the third stage from a few seconds to several hours, commonly half to one minute. In cold-blooded mammalia the stages are much more prolonged.

Preyer finds the solution of the phenomena of prussic acid intoxication in the action of the poison on the vagus nerve, and his study of the action of the acid on that nerve has led him to the discovery of an antidote for the poison. In warm-blooded animals prussic acid induces inspiratory tetanus, with stoppage of the heart, and this through the vagus. It also, by its action on that nerve, diminishes the frequency of the cardiac pulsations. When the vagus is divided before the poison is injected subcutaneously no changes in the heart's activity are observed; and when rabbits had both vagi divided and ordinary lethal doses of the poison were subsequently injected, recovery took place. It appears that the rationale of hydrocyanic intoxication is as follows:—Irritation of the peripheral terminations of the vagus in the lungs; excitation of the origin of the vagus; then paralysis of that nerve; inspiratory tetanus; stoppage of the heart; then renewed cardiac pulsations after the stoppage of respiration; lastly, stoppage of the heart. Mammalia with divided vagi die after breathing the vapours of the acid, or its injection, from direct action of the poison upon the heart (cardiac paralysis). Seeing that hydrocyanic acid influences the activity of the brain (in men), and causes dizziness, headache, disturbances of the co-ordinating faculty, &c., the therapeutical employment of the acid is to be deprecated.

Preyer found that prussic acid intoxication is fatal from the supervention of asphyxia, and that the blood cannot be distinguished from that in asphyxia from other causes, except that it contains the poison itself. Moreover, the thermal changes of the animal are identical in the two classes of cases. If, however, the dose of the poison be sufficiently great to kill by paralysis of the heart, the blood is bright red and contains oxygen. In confirmation of the author's views as to the physiological action of hydrocyanic acid, he finds that when the vagus is divided in rabbits, and the poison injected beneath the skin, the respirations are at first quickened and afterwards retarded, whilst if the poison be breathed after division of the vagi the converse is observed,

the respirations being at first retarded in frequency and then rendered more rapid.

Preyer finds that when respiration has ceased the only available means of resuscitation is artificial respiration. It is, of course, presupposed that the heart has not also ceased to beat. Atropine is the only real dynamic antidote to hydrocyanic acid, and it appears to be a perfect one, its physiological actions being in direct opposition to those of the acid. It is necessary, to ensure success, that the alkaloid should be administered by subcutaneous injection very shortly after the ingestion of the poison, on account of the rapidity with which this acts and the comparative slowness with which atropine is absorbed from the stomach. Rabbits to which atropine was administered before the use of prussic acid, exhibited a surprising immunity to the action of this most powerful toxic agent.

Dr. Amory,* of Boston, Massachusetts, publishes experiments illustrating some of the physiological and pathological actions of hydrocyanic acid. The following is a summary of his conclusions:—(1) Artificial respiration does not prevent the intoxication of prussic acid, nor does it materially assist in the elimination of the poison, consequently means directed to the institution of artificial respiration in cases of poisoning by the acid are unnecessary for the protection of life. (2) Artificial respiration will prevent the occurrence of convulsions or of the muscular spasms which follow the absorption of the poison in a dose of sufficient quantity to endanger life. (3) Muscular irritability and nervous conductibility are not impaired by the intoxication caused by hydrocyanic acid in cases where artificial respiration has been maintained until after the cessation of cardiac pulsations. (4) The static congestion of the pulmonary tissue is either a post-mortem symptom or is due to the asphyxia which has been considered by some experimenters as one of the causes of death in cases of poisoning by prussic acid. (5) Death by this agent is due to some other cause besides asphyxia, and it may be suggested that the fundamental cause is a state of blood poisoning due to some alteration of either the physical or the chemical condition of the blood; which of the two it is not the purpose of the author to discuss. (6) The apoplexy in the encephalon and spinal cord, noticed by Tardieu as an anatomical lesion due to the intoxication produced by this agent, is probably referable to the asphyxia, secondarily induced, and not to the direct action of the poison. The same condition has been observed in animals dying from asphyxia produced by other causes, as, for instance, by nitrous oxide and by chloroform. When asphyxia is not present in a case of poisoning from prussic acid no very marked apoplexy or congestion is noticed post-mortem.

Dr. Mialhe† endeavours to prove that prussic acid is unable to combine with the alkalies of the blood, and that the poison thus prevents the catalytic action of the corpuscles from being affected, an action which Schönbein has already demonstrated as taking place in normal red blood-corpuscles, and thus oxidation in the blood does not take place.

* 'The Practitioner,' viii, p. 197.

† 'L'Union Médicale,' No. 65, 1872.

Hydrocyanic acid would thus appear to act upon the blood in the same manner as it acts upon fermenting solutions, which immediately on the addition of the acid cease to ferment.

Nitro-benzol.—Bahrdt* describes several cases of poisoning with nitro-benzol, one of which proved fatal. Three young persons, about the age of 20, prepared a liqueur by filling an ordinary wine-bottle with one part of water, two parts of alcohol, and, as was said, twenty drops of nitro-benzol. One of the boys drank largely of the mixture about 8 o'clock in the morning. Death occurred about 5 p.m. The symptoms and post-mortem appearances are minutely described. The general summary is given in the following propositions: (1) even with a fatal dose of nitro-benzol there is a latent period of from one to two hours; (2) this latent period is independent of the kind of preparation, or of the quantity swallowed; (3) even during the latent period a peculiar greyish-blue discoloration of the skin is observed; (4) rapid pulse, intermittent respiration, unconsciousness coming on gradually or suddenly, and dilatation of the pupils, are constant signs of poisoning with nitro-benzol; vomiting and convulsions are usually observed, but may be absent. A transitory recovery may occur even in fatal cases; (5) nitro-benzol poisoning differs from prussic acid poisoning by its longer latent period, the greyish-blue colour of the skin, and the dark-brown colour of the blood; (6) as treatment, Bahrdt recommends in the first instance the use of the stomach-pump, the inhalation of ammonia vapour, and copious transfusion (2—3 ounces); (7) after death there is a distinct smell of bitter almonds; the blood is dark brown and fluid, and the endemic rigidity is well pronounced and of long duration.

Chloral hydrate.—Several cases of poisoning by chloral have been reported in the medical journals at home and abroad. As most of the cases are in English journals and easily accessible, we merely give the references.

See on this subject the papers by B. W. Richardson,† Hunt and Watkins,‡ Norris,§ Fuller,‖ Shaw,¶ and Burr.** Maschka†† reports a case in which, after the administration of a drachm of chloral hydrate by a dentist for the purposes of anæsthesia during the extraction of teeth, death resulted within a few minutes after the operation.

Atropine.—Prof. H. C. Wood, jun.,‡‡ of Pennsylvania, has confirmed the observations of Messrs. Wharton Jones and Lemattre, that belladonna and atropine have little or no influence on the pupils of pigeons; and has established the fact, that belladonna, stramonium, and hyoscyamus resemble morphine in their want of action on these birds. It appears to be almost impossible to immediately kill them with the

* 'Arch. f. Heilk.,' 1871, p. 320.
† 'Med. Times and Gaz.,' 1871, i, p. 169.
‡ 'Brit. Med. Journ.,' 1871, i, p. 193.
§ 'Lancet,' 1871, i, p. 226.
‖ Ibid., 1871, i, p. 403.
¶ 'Phil. Med. and Surg. Rep.,' July, 1871.
** Ibid., Dec., 1871.
†† 'Wien. Med. Wochensch.,' 1871, No. 48.
‡‡ 'Amer. Journ. Med. Sc.,' lxi, p. 128.

extracts given by the mouth. Three grains of pure sulphate of atropine were given to a pigeon, and retained, and yet the dose did not appear to interfere materially with the wellbeing of the bird. It is very possible, however, to kill the birds with the poison by enormous doses hypodermically injected. These experiments show what care must be exercised in drawing conclusions in toxicological research from physiological investigations. Dogs will bear almost heroic doses of atropine, and the horse will tolerate with impunity an enormous dose of strychnine.* Hence conclusions as to the antidotal or non-antidotal effects of two poisons on the human subject cannot be drawn with certainty from experiments on the lower animals.

Tobacco.—Drs. Vohl and Eulenberg† have published an elaborate experimental essay on the toxicological relations of tobacco, with especial reference to the chemical constituents of tobacco smoke. After an account of the introduction of tobacco into Europe, a summary is given of its chemical history, and the statement is made that the narcotic action of tobacco has been attributed to nicotine in error. The authors adduce analyses and experiments of their own in support of this view. Stress is laid upon the fact that some forms of tobacco which produce powerful physiological effects contain but little nicotine. In snuff this alkaloid varied from ·0392 to ·062 per cent., whilst strong chewing tobacco contained a mere trace of nicotine, and some kinds contained none at all; hence nicotine intoxication is out of the question in the use of these sorts of the weed. They were thus induced to analyse the smoke of strong tobacco containing so much as 4 per cent. of nicotine, the tobacco being burnt both in pipes and as cigars. The gases given off were found to consist of oxygen, nitrogen, marsh gas, carbonic oxide, carbonic acid, and sulphuretted hydrogen. The smoke was drawn first through a solution of potash, and the acids thus absorbed examined; then through dilute sulphuric acid, and the bases thus collected were examined. The potash solution was found to contain a neutral carbohydride ($C_{19}H_{18}$) and several other carbo-hydrides, hydrocyanic acid, the fatty acids from formic to caprylic acid inclusive, phenol acid, succinic acid, and kreasote, but no benzine.

In the acid solution were found ammonia and ethylamine, besides the following homologous bases:—Pyridine, C_5H_5N; picoline, C_6H_7N; lutidine, C_7H_9N; collidine, $C_8H_{11}N_9$; parvoline, $C_9H_{13}N$; coridine, $C_{10}H_{15}N$; rubidine, $C_{11}H_{17}N$; and, perhaps, viridine, $C_{12}H_{19}N$. Not a trace of nicotine could be detected.

The authors ascribe to the pyridine bases, and not to nicotine, not only the nausea and other unpleasant symptoms experienced by persons beginning to smoke, but also the more chronic affections to which inveterate smokers are liable. Parvoline greatly resembles nicotine in odour and in physiological action, and might readily be mistaken for this alkaloid, but they differ essentially in their respective boiling points. The well-known fact that a much stronger tobacco can be smoked with impunity in cigars than in a pipe is explained thus. The smoke of a pipe contains much more volatile bases than that of a cigar, and con-

* 'Amer. Journ. Med. Sci.,' lxi, p. 377.
† 'Vrtljhrsecrft. f. Gericht. Med.,' N. F. xiv, p. 249.

tains especially a much larger proportion of pyridine, which is the most volatile base of its series, and is very stupefying.

The physiological actions of the various alkaloids of the pyridine and picoline series were not tested separately, but a mixture of the bases was used for experiment. Two mixtures were employed, one consisting chiefly of the first three alkaloids of the series, pyridine, picoline, and lutidine; the other chiefly containing the higher members of the series, collidine to viridine inclusive. The experiments upon animals with these liquids do not appear to have been very elaborate; it was, however, ascertained that they both acted very like nicotine, inducing contraction of the pupils, laboured breathing, general convulsions, and, if in sufficient doses, death. On section the bronchial tubes and lungs were found to be congested. Singularly enough, the effects were more quickly produced when the liquids were taken internally than when injected beneath the skin. They did not act so rapidly in any case as nicotine.

Vohl and Eulenberg adduce the case of a man whom they know to be able to swallow the juice from a tobacco-pipe without apparent effect. They do not think, nevertheless, that his case militates against the rule that pyridine bases powerfully affect the animal organism.

Since plants which are known to contain no narcotic are occasionally used by smokers as substitutes for tobacco, and it is known, moreover, that the pyridine bases are among the products of the destructive distillation of most nitrogenized vegetable and animal substances, the authors deemed it of importance to investigate the action of the pyridine bases from various sources, and those produced from stramonium, willow wood, dandelion, and Boghead coal, were employed. The actions of these bases were very similar to those resulting from the use of the alkaloids obtained from tobacco, but the effects were weaker, and except after the use of the alkaloids produced from willow wood, there was no contraction of the pupil. The vapour of picoline was found to be highly poisonous.

As regards opium, Vohl and Eulenberg are of opinion that its action when smoked is not due to the alkaloids which the drug naturally contains, but to the bases produced by its destructive distillation, which differ somewhat from those produced by the distillation of tobacco.

Heubel,* who has made an experimental inquiry into the active principles of tobacco smoke, with special reference to the researches of Vohl and Eulenberg on this subject, thus sums up his conclusions:—(1) Tobacco smoke undoubtedly contains nicotine. This is proved both by chemical analysis and physiological experiment. (2) By the slow combustion of tobacco, as in ordinary smoking, a comparatively large amount of the alkaloid becomes volatilised in the smoke. (3) The nicotine in the tobacco smoke occurs chiefly as a nicotine salt. (4) The reason why nicotine, though volatile and easily decomposed, is not all destroyed during the process of smoking, appears to be, in a measure, due to the fact that the alkaloid in the leaves, as well as in the smoke, is not free, but is in the form of stable salts (malate and

* 'Centralblatt f. d. Med. Wissensch.,' No. 41, 1872.

citrate). (5) The physiological action of tobacco smoke is, to a great extent, due to the nicotine it contains.

Opium.—Dr. Schaefer,* of Dusseldorf, publishes a case of opium poisoning of considerable interest,—that of a child, which died after taking about three quarters of a grain of opium in two doses. The *post-mortem* appearances were unusually well marked. On sawing through the calvarium there was a flow of black, fluid blood; the blood-vessels of the dura mater, but more especially those of the arachnoid, both on the cerebral convolutions, the cerebellum, and the medulla oblongata, were filled with blood; and there was likewise found in both ventricles, not only a considerable quantity of effused serum, but also several drachms of a similar fluid were met with at the base of the brain. Death from apoplexy was most markedly indicated. Besides the more ordinary appearances met with on section after opium poisoning, Schaefer describes in this case a spongy condition of the lungs, which were gorged with black, fluid blood, blood in all the cavities of the heart; hyperæmia of the liver and spleen, and a full urinary bladder. The appearances presented by the post-mortem ecchymoses were very striking; instead of being purple they were rose-red and of great extent.

The presence of opium was ascertained by analysis in the œsophagus, stomach, and its contents, and in a portion of the small intestine, although the whole quantity of morphia taken could not have exceeded one tenth of a grain. The opium was administered, one half five hours, and the remainder three hours, before death.

Picrotoxin.—Herr Povergo† has investigated the action of picrotoxin on the reflex inhibitory centres of the brain of frogs, and arrived at the conclusion that picrotoxin and strychine act in a similar manner on these centres.

Vanilla ice.—Maurer‡ gives an account of the symptoms of poisoning in nine persons after partaking of vanilla ice. The chief symptoms were gastralgia, severe vomiting, entralgia, diarrhœa, and in some cases a greater or less degree of collapse and cold extremities. None of the cases proved fatal. Maurer attributes the symptoms to the vanilla, and not as has been suggested to any admixture of lactate of zinc which has been supposed to result from the action of the lactic acid of the cream on the zinc vessels in which the ice is generally manufactured.

Mushrooms.—C. Ruckert§ has re-examined the *Agaricus muscarius*, extracting from the plant by a process first followed by Schmiedeberg an alkaloid—*muscarine*. Ruckert obtained ·07 to ·08 per cent. of the sulphate from a thick extract of the fungus. Muscarine forms a colourless, syrupy substance, tasteless, and odourless. It yields the usual reactions of an alkaloid, and is not coloured either by sulphuric acid alone, or by this in conjunction with oxidising agents.

The physiological effects of muscarine are stated to be antagonistic to those of atropine.

* 'Vrtljhrsschrft. f. Gericht. Med.,' N. F. xvi, p. 255
† 'Deut. Ztschr. f. d. Staatsarznyk.,' xxix, p. 1.
‡ 'Deutsch. Archiv f. Klin. Med.,' ix, p. 303.
§ 'New Rep. Pharm.,' xxi, p. 193.

Husemann* publishes a paper on the poisonous action of fungi, embracing all that is known on the subject, but embodying no new remarks.

Snake poisons.—The medical profession is greatly indebted to Dr. Fayrer† for his magnificent work on Indian snakes. It embraces the whole range of the subject, beginning with coloured lithographs and anatomical descriptions of various snakes, followed by an experimental inquiry into the reputed cures for their bites. The poison of the cobra is the most deadly of all. Dr. Fayrer says that it is most deadly in warm weather; that it seems to act through the circulation, and kills by some occult influence—whatever that may mean—on the nervous system. He distinctly lays it down that the poison is capable of being absorbed through the mucous membranes, though, of course, much less rapidly than from an open wound or through the serous membranes. As the poison kills when introduced into the stomach there is a certain amount of risk attending the act of sucking a wound inflamed by a poisonous snake. The venom of the cobra kills every living creature, except the cobra itself, and, perhaps, some other deadly snakes.

Dr. Fayrer has tried, perhaps, every known reputed remedy for the treatment of poisonous snake bites, and always unsuccessfully. The lightning-like rapidity with which the venom diffuses into the blood holds out little hopes of any remedy being applied with success. Even immediate ligature and amputation, as appeared from experiments upon animals, is of little avail. Among the remedies used we may enumerate, ligatures, amputations, *Aristolochia indica*, carbolic acid, liquor ammoniæ injected into the blood, liquor potassæ, Condy's fluid, eau de luce, brandy, and other stimulants, the Cape antidote, norbish, quinine, ipecacuanha, various secret nostrums, as the Tanjore pill, &c. There appears, then, to be no known antidote to the poison of the deadly Indian snakes, and it is probable that the only successful treatment (successful only in rare cases) is amputation or excision, the application of ligatures, the actual cautery or burning by strong acids, and the use of stimulants internally.

Dr. Fayrer is of opinion that the most successful means for staying the lamentable loss of life now going on in India from the bites of these venomous reptiles is the offering of sufficient pecuniary rewards to the natives for the destruction of venomous snakes. In 1869, out of a population of 120,972,263,—11,416 persons died from the effects of snake bites, an annual rate of mortality of 0·94 per 1000 persons living.

Snake poison.—Mr. Vincent Richards‡ asserts that the poison of venomous snakes may be absorbed by mucous and serous surfaces, and even by the skin. This opinion is supported by the authority of Dr. Fayrer, who observes, that the poison is deadly when applied to a mucous or serous membrane, to the stomach, or the conjunctiva.

Poisonous mussels.—M. de Beunie§ attributes the occasional poi-

* 'Schmidt's Jahrbücher,' cxlix, p. 89, and cl, p. 89.

† 'The Thanotophidia of India.' By J. Fayrer, M.D. London, 1872.

‡ 'Med. Ann. of Med. Sc.,' xxix, 162.

§ 'Journ. de Pharm. et Chem.,' 1871, p. 298.

sonous qualities of the edible mussel (*Mytilus edulis*) to their feeding on the spawn of star fishes. Star fishes spawn in the months of April, May, July, and August, and it is chiefly in these months that mussels exhibit poisonous properties. He states that the spawn of the star-fish possesses a very irritant action, and that the slightest contact with it causes violent itching, and may even occasion inflammation resulting in gangrene.

The following notes relate to the detection of poisons.

Phosphorus.—M. Poulet* gives a very simple method of detecting this poison when being excreted in the urine, in which it appears as hypophosphorous acid. The urine is calcined after the addition of nitric acid; when, as the liquid approaches the state of dryness, the mixture suddenly catches fire and burns with a peculiar kind of deflagration. This test must, however, be liable to many fallacies; deflagration alone in the presence of nitric acid cannot be regarded as conclusive evidence of the presence of a lower oxide of phosphorus.

Dalmon† describes a new reaction for phosphorus. A stream of hydrogen is passed through the organic substance supposed to contain phosphorus; and the issuing gas is ignited, and a narrow glass tube inverted over the flame when detonations, accompanied by a peculiar luminous appearance, will be observed. With care, and by a peculiar artifice, a beautiful green ring of flame may be obtained. If the interior of the tube be previously moistened with distilled water, and after the above experiment with a solution of nitrate of silver, a brown precipitate, speedily becoming black, will be observed. No platinum tip for burning the gas is required.

Neubauer‡ also describes an improved and simple method of obtaining Mitscherlich's phosphorus reaction. The matter to be tested is distilled in an ordinary flask provided with a cork, through which passes a glass tube bent twice at right angles, the terminal and vertical limb of which has three glass bulbs blown upon it. Before distillation, the substance to be tested is treated with a few drops of diluted sulphuric acid and a fragment of green vitriol, in order to retain sulphur, which hinders the reaction. A fiery stream is seen descending through the bulbs if phosphorus in the free state be present. The end of the tube may be made to dip into alcohol, which retains a considerable quantity of phosphorus, and if a few drops of the alcoholic solution of phosphorus be dropped into water, and shaken in the dark in a bottle, the whole appears luminous. Moreover, the alcoholic solution reduces a solution of nitrate of silver, giving a black precipitate, and a similar reaction occurs with sulphate of copper as a reagent, but the liquid does not blacken lead salts as sulphuretted hydrogen does.

Hydrocyanic acid.—Almen§ points out an error in the ordinary method of applying the sulphocyanogen test for the detection of hydrocyanic acid. When the suspected solution, or rather a portion distilled off from it, is treated with ammonium sulphide and evaporated on a

* 'Gaz. Méd. de Paris,' 1872, p. 400.
† 'Ztschr. f. Anal. Chem.,' 1871, p. 132.
‡ Ibid., p. 254.
§ 'Neu. Jahrb. d. Pharm.,' xxxi, p, 226.

water- or sand-bath, if a trace of cyanide only be present this may be lost through the volatility of ammonium sulphocyanate. This may, however, be prevented by adding a few drops of a solution of caustic soda to the mixture before it has reached dryness. Sodium sulphocyanate is formed, which is not volatile at the temperature employed. Almen's paper contains other valuable hints on the testing for prussic acid.

Preyer* finds the most delicate reagent for the detection of hydrocyanic acid in the blood to be Schönbein's test with guiacum and cupric oxide. The following method is recommended for the detection of the poison in the blood. The blood is diluted with water, and peroxide of hydrogen added; it then becomes brown, gives off but little oxygen, and exhibits a continuous spectrum. Another portion of the blood is distilled with diluted phosphoric acid, and the distillate divided into four portions. One portion is treated with ammonium sulphide, evaporated to dryness, and treated with ferric chloride for the production of red ferric sulphocyanate. Another portion is treated with liquor potassæ and ferrous chloride, then with hydrochloric acid, in order to form Prussian blue if hydrocyanic acid be present. A third portion is tested with silver nitrate, whilst to the fourth is added tincture of guiacum and a little copper solution, when, in the event of hydrocyanic acid being present, a blue colour is perceived.

Emetine.—Pander† states that sulphuric acid in which a little molybdate has been previously dissolved gives a reddish colour with emetine, speedily changing into green, even with $\frac{1}{6000}$th grain of the alkaloid. Even with $\frac{1}{9000}$th grain of emetine the reagent gives a reddish iridescence. Bismuth iodide, or cadmium iodide dissolved in potassium iodide, gives a precipitate with $\frac{1}{3000}$th grain of emetine in 25,000 times its weight of water. Emetine is decomposed by fermentation.

Brucine.—Pander‡ has also found Dragendorff's nitric acid test to be the most delicate for the detection of brucine. If the suspected alkaloid be brucine, $\frac{1}{3000}$th grain of it will yield, when dissolved in sulphuric acid, and a drop of nitric acid allowed to come in contact with it, at first a rose, then an orange, and finally a yellow colour. The stannous chloride test is only one fifth as delicate as the above. The presence of strychnine does not interfere with the nitric acid test for brucine, nor does caffeine interfere with the testing for the alkaloid. Fermentation does not destroy brucine.

Physostigmine.—The same experimenter§ finds that bromine-water gives a red-brown colour with $\frac{1}{120}$th grain of the alkaloid. Calcium chloride gives a red colour after a few minutes with one sixth or one twelfth grain of the alkaloid. Fermentation decomposes physostigmine.

Picrotoxin.—In order to detect picrotoxin in beer, Blas‖ removes the lupuline by evaporating five quarts of the beer to a small bulk after saturation with soda, and shakes with one tenth of its volume

* 'Die Blausaure.' Pamphlet.
† 'Chem. Centr.,' 1872, pp. 437, 440.
‡ Ibid., pp. 437, 440.
§ Ibid.
‖ Ibid., p. 441.

of ether. The residue is acidified and again shaken with ether, when the picrotoxin is dissolved out, and may be obtained by evaporating the ethereal liquid. The mass is dried and redissolved in alcohol faintly acidulated with acetic acid, and the filtered solution evaporated. If no distinct crystals are obtained the residue is to be recrystallised from alcohol. Picrotoxin as thus obtained is recognised by the fan-like or wheat-sheaf form in which it crystallises, its very sparing solubility in water and ether, its ready solubility in alcohol, its bitterness, and its action on fishes. A couple of fishes of about seven ounces weight are placed in rather less than two quarts of water. A solution of the crystals, obtained as above, is made by dissolving them in alcohol, adding water, and boiling off most of the alcohol. This solution is then added to the water containing the fishes. The fishes speedily die if the suspected substance be picrotoxin. Lupuline has not this poisonous action on fishes. Thirty grains of cocculus indicus, corresponding to one and a half grain picrotoxin, is sufficient to kill a fish of seven to eleven pounds' weight in ten hours. At least five quarts of beer should be operated on.

Depaire,* in a notice on the above paper, gives another process for separating picrotoxin. The beer is shaken with common salt—400 grains per quart—and filtered. The filtrate is exhausted twice with ether; the residue from the evaporation of the ethereal solution dissolved in alcohol, half an ounce of water, and one drop of sulphuric acid added to the solution, the liquid heated for a quarter of an hour on the water-bath, cooled, filtered, and shaken with ether, the ethereal solution is evaporated, the residue recrystallised from alcohol and examined.

The Wharton-Ketchum Trial.†

This celebrated trial has excited so much interest throughout the United States, and the nature of the evidence offered is so remarkable, that we are induced to offer a summary of the scientific testimony along with a brief history of the case. The theory of the prosecution was that Mrs. Wharton was in debt to General Ketchum, and had invited him to her house for the purpose of poisoning him, and that she actually accomplished her design by means of tartar emetic. The trial lasted fifty-two days, and the jury were locked up for seven weeks. Collateral evidence was offered to show that she had also attempted to poison a Mr. Van Ness, connected with her firm of bankers, who was staying in her house at the same time as Gen. Ketchum.

General Ketchum, the deceased, was an old army officer, an intimate friend of the accused. He was in apparently good health and of active habits. On June 24, 1871, a very hot, sultry day, he had undergone considerable bodily exercise by walking in Washington on business matters. He neglected eating his dinner, partook plentifully of iced water, took the train for Baltimore, and arrived at Mrs. Wharton's house between 6 and 7 p.m. He ate very heartily at supper about 9 p.m. He retired, apparently in good health, at 11 p.m., but had to go to the closet once or twice in the course of the night. Next morning he

* Loc. cit.

† 'Amer. Journ. of Med. Sc.,' lxiii, p. 329.

remarked that he had not been very well in the night, but he went out, and partook of all his meals with the family on that day; and although complaining of not feeling well, he appeared more cheerful after tea, chatting with the family and smoking until he retired at 11 p.m. Before going to bed he drank a glass of lemonade with a Mrs. Chubb. His glass contained some brandy, which he himself added. On that night he was again sick, and had slight purging. On the morning of the 26th he complained of sickness and giddiness, and remained in his room during the day, although he ate all his meals. In the afternoon, at the solicitation of the accused, he saw Dr. Williams. At 4 p.m. that physician found him sitting up and vomiting into a vessel which he held. Dr. Williams ordered him to bed, and prescribed creasote and lime-water, thinking him to be suffering from cholera morbus. No mention is made of diarrhœa at this time. Next morning he had much improved, and he dismissed his physician, the latter regarding his patient as well.

Throughout this day, however, he was somewhat drowsy, as if under the influence of some narcotic. He stated that he had taken some of his own medicine, and a vial which had contained laudanum was found beneath his bed. On June 27th he appears neither to have vomited nor been purged, but on the morning of the 28th he was found on a sofa nearly insensible. At 10 p.m. Dr. Williams found him in a semi-comatose state, very difficult to arouse, and giving inarticulate answers. On being touched a slight convulsive tremor passed over him from head to foot. His head and face were much congested, of a purplish tinge. His limbs were rigid. He gave only muttered replies to questions, and did not complain of suffering. The respirations were normal, the skin was not preternaturally moist, the pupils were not contracted, but were insensible to light. The treatment consisted of ice to the head, and 40 drops of tinct. of gelseminum in water. This was to be repeated in 2 hours. Whilst the ice was upon the head, he had some convulsions of a peculiar character, the tendency of which was to throw the body from the back to the left side. At 1 p.m., after a third dose of gelseminum, the general became very restless, and uttered incoherent cries. The convulsions increased in intensity, giving to the body the true character of opisthotonos. He tore at his neck and abdomen, so as to inflict extensive abrasions; but it is doubtful whether these movements were not automatic. At 1.30 Dr. Williams administered chloroform, and drew off the urine, suspecting uræmic poisoning, but detected no albumen. Thirty grains of chloral hydrate were given in milk, but the convulsions were so violent that he bit the spoon so that his first tooth was loosened. At 3 p.m. he died in a convulsion.

The autopsy was made next day by Dr. Williams, assisted by Prof. Miles and Chew. The brain and abdominal cavity only were examined. Nothing was discovered to account for death, the only thing noted being red punctiform congestion of the cerebral lobes, and doubtful congestion in patches of the alimentary canal. The stomach was secured and handed to Dr. Aikin for analysis. It presented nothing of a very marked character. Dr. Aikin reported that he had satisfied himself of the existence in the stomach of tartar emetic to the extent of

at least twenty grains. His method of arriving at this conclusion is curious and open to much objection; nevertheless, it has great influence in forming the probable ground of the opinion, expressed at the trial, of Dr. Williams and of Profs. Chew, Miles, Donaldson, Howard, Johnstone, and Smith, that the death was not due to natural causes. Dr. Aikin's analysis of the contents of the stomach was conducted thus. Inferring the possible existence of strychnine or of arsenic, he tested for the former of these by the process of Stas, which gave him, he says, negative results. He appears, however, to have omitted applying the colour and physiological tests. He next proceeded to examine for arsenic and antimony, using the material already employed in the analysis for strychnine. A portion of this material was treated with hydrochloric acid and chlorate of potassium, then, without previous treatment with a sulphite, a stream of sulphuretted hydrogen was passed through the solution. A dark brownish precipitate was thus obtained. As this precipitate did not dissolve in ammonia, he was satisfied that it could not be arsenical. Another portion was now treated with tartaric acid and sulphuretted hydrogen, without preliminary destruction of organic matter, when a reddish-brown or brownish-red precipitate was obtained. When this was separated and dried it dissolved in hydrochloric acid; this solution, when dropped into the water, gave a white precipitate; that white precipitate became orange red when treated with sulphide of ammonium, and it was soluble in tartaric acid. This completed all that was necessary to satisfy Dr. Aikin of the presence of antimony, and he stated in evidence that he knew of nothing that would have produced these results except antimony. He admitted that Reinsch's test had failed to give any result for antimony; and he entirely neglected to attempt to procure metallic antimony from the stomach. His method of determining the quantity of tartar emetic present was simply a piece of guesswork. The chemical testimony for the defence demonstrated that the colour test (the orange red precipitate) with all its subsequent reactions, *save one*, might be obtained when no antimony was present.

Bloodstains.

F. L. Sonnenschein * proposes a new reagent for the verification of these, viz. soluble tungstates, which give, with albuminates and gelatine, a precipitate insoluble in acids. Sodium tungstate, supersaturated with either acetic or normal phosphoric acid, is preferred, and forms even a more delicate reagent for the proteids than Millon's solution. A dilute and filtered solution of blood gives, with the above-mentioned solution, a voluminous, reddish-brown, or chocolate-coloured precipitate, which shrinks much in volume on boiling, and is then seen, under the microscope, to consist of small vesicles. The precipitate is soluble in ammonia and in alkaline solutions, forming a dichroic mixture having the same intensity of colour as the blood itself when ted with ammonia. On acidification the original precipitate re- ears. The precipitate contains all the elements of blood. On in- ration and fusion of the ashes with a mixture of sodium carbonate

* 'Vrtljbrsch. f. Gericht. Med.,' N.F., xvi, p. 263.

and a trace of potassium nitrate, and subsequent lixiviation, an insoluble residue of ferric oxide is left, free from tungsten.

Molybdic acid gives a similar precipitate to that produced by tungstic acid with albuminates and blood.

The precipitate produced by tungstic acid in solutions of blood or of blood and veins may be treated with ammonia and examined by the spectroscope.

J. v. Geuns and J. W. Gunning † find in zinc acetate an excellent precipitant for the colouring matter of blood. The bulky, flocculent precipitate which forms in solutions containing blood, on the addition of the acetate, can be readily washed, placed on an object-glass whilst still in a pasty condition, treated with acetic acid, and hæmine crystals obtained.

Zahn† applies the evolution of oxygen which follows on the addition of hydrogen peroxide as a means of detecting blood stains. He does not regard it as an absolutely certain test, but thinks that it may be applied directly without the necessity of dissolving off the colouring matter from the articles stained. The non-evolution of oxygen is not a proof of a stain not being due to blood, as the corpus delicti may have been previously treated with boiling water. If the other tests for blood are successful and the hydrogen peroxide test fail, it is a proof that the stained articles have been subjected to the action of hot water on the influence of a high temperature.

Sorby‡ contributes a valuable paper on the spectroscopy of blood, and Preyer§ has an excellent description of the modes of testing for blood.

The Structure of Hair in its Medico-legal Aspects.

Hoffmann‖ has investigated the structure of hair in man and the lower animals for the purpose of diagnosis in medico-legal cases. He sets himself to answer the questions:—(1) Whether man's or brute's hair? (2) From what part of the body? In regard to the first question the difficulty, as a rule, is not great. The chief point to be attended to is the structure of the medulla. In human hair the medulla is very fine or altogether wanting, while in the hair of animals the medulla is very broad and the cortical substance greatly reduced. The medulla of human hair is granular, while that of animals is well-marked and cellular, and this gives it quite a different appearance. The second question as to what part of the body the hair is from is answered chiefly by examination of the free end of the hair, which, when it has not been disturbed, forms a fine point, or, if cut, exhibits a square end, which, after some time, gradually becomes rounded or fibrillated. The free ends of the body-hairs undergo changes by friction and the action of the perspiration. The appearance of the free end of the hair, taken in conjunction with other circumstances, may enable us to determine, if not with perfect definiteness, yet with more or less certainty, from what part of the body the hair has come.

* 'Chem. Centralb.,' 1871, p. 37.
† 'Virchow und Hirsch's Jahresber.,' 1871, p. 416.
‡ 'Monthly Micros. Journ.,' vi, p. 9.
§ Op. cit., p. 208.
‖ Prager„' Vierteljahrsc. f. Heilk.,' 1871, iv, p. 67.

Ecchymoses after suffocation.—Dr. Julius Lukomsky,* of Kiev, publishes an interesting criticism on the ecchymoses which Tardieu has described as characteristic of death from suffocation. In order to arrive at a satisfactory settlement of the questions at issue, Dr. Lukomsky made an elaborate series of experiments on the pressure of the blood in the various vessels during the time that animals were being suffocated. By suffocation (erstickung) is meant, in a restricted sense, all causes of death by mechanical applications for the purpose of excluding air, applied to the mouth and nose, to the air passages and œsophagus, pressure on the chest and abdomen, and suffocations by being buried in earth, or in any pulverulent material.

During suffocation it was found that both the arterial and venous pressures were materially increased. After this had been established beyond doubt, the variations in respiration were noted—1st, after simple closing of the trachea so as to produce suffocation; 2nd, after suffocation induced by irritation of the nerves; 3rd, after suffocation consequent on section of the nerves; 4th, by occlusion of the trachea after forcing air into the lungs under increased pressure; 5th, in suffocation by rarefaction of the air. It was thus proved, on comparing the pressure of the blood and the variations in the mechanism of respiration during suffocation, that—(1) during suffocation a typical change in the rhythm of respiration takes place; (2) a considerable increase of pressure was noted in both arteries and veins, especially in the region of the thorax; (3) there was a diminution of pressure in the pulmonary artery; (4) the greatest increase in the pressure of the blood coincided with the period of most powerful respiratory effort, *i. e.* with expiration. Dogs were the animals experimented on.

The connection between the arterial and venous pressure and Tardieu's ecchymosis is next traced. In normal respiration, during inspiration, there is an increased flow of blood into the right heart, a quickened action of the heart, and consequently an increased arterial pressure; whilst during expiration the converse obtains. But in suffocation the greater effort at and duration of each inspiration increases the flow of blood to the right ventricle. In consequence of a diminution of pressure in the pulmonary artery, blood flows more quickly from the right into the left ventricle, and consequently both the activity of this and the pressure in the arteries are heightened. But when a rapid and energetic expiratory effort follows upon the climax of inspiration, and this effort at expiration adds an increase of pressure to the already heightened arterial pressure in the thorax, it is seen that there is a direct connection between the altered relations of the respiratory mechanism during suffocation and the development of the peculiar form of subpleural ecchymosis which Tardieu has pointed out as a diagnostic sign of suffocation. The memoir is enriched with experiments bearing upon the altered rhythm of respiration and variations in arterial and venous pressure when suffocation is artificially produced by various means, as, *e. g.*, by section of nerves; but these experiments, valuable as they are, are of more interest to the physiologist than to the medical jurist.

* 'Vrtljhrsschrft f. Gericht. Med.,' N. F., xv, p. 58.

REPORT

ON

MATERIA MEDICA AND GENERAL THERAPEUTICS.

BY

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Sulphovinate of sodium.—M. Rabuteau* proposes the use of this salt as a purgative, and states that it possesses the following advantages. (1.) Its taste is very slight at first, and is afterwards sweet, so that it is taken without difficulty even by children. (2.) It is the mildest in its action of all the saline purgatives, and is especially useful in colic. (3.) It produces no pain or tormina, and is exclusively a dialytic purgative; hence it is useful during menstruation and pregnancy. (4.) It presents all the advantages, and none of the disadvantages, attending the use of citrate of magnesium. In the first place, the sulphovinate is more agreeable to take, especially when administered in seltzer water, than the citrate; and in the next place, it does not tend to the production of calculi, as the citrate of magnesium is apt to do. (5.) Sulphovinate of sodium acts as a purgative when given in relatively small doses. Rather less than an ounce of the salt dissolved in seltzer water is invariably sufficient to produce in an adult five or six stools. 2½ drachms suffice for a child, and this dose produces very appreciable effects even in an adult. (6.) It does not produce after-constipation, as saline purgatives are so apt to do; this owing to the rapidity with which the sulphovinate of sodium is eliminated after its absorption.

Peroxide of hydrogen.—Dr. John Day,† of Geelong, finds in pessaries containing peroxide of hydrogen a convenient method of destroying the offensive odour which accompanies the discharges of patients suffering from cancer of the uterus. The following is his formula: Melt, with gentle heat, twelve drachms of cocoa-butter, and well stir in until thoroughly incorporated eight scruples of ethereal solution of peroxide of hydrogen. When nearly cold divide into eight pessaries. One to be inserted into the vagina every night and morning, or oftener if necessary. They keep well.

* 'Gaz. Hebd.,' June 10, 1870.

† 'Austr. Med. Journ.,' 1871, p. 303.

Chlorides.—Rabuteau* has found that common salt, when given in considerable quantities, greatly increases tissue change and the excretion of urea. At the same time it increases the secretion of gastric juice and its acidity. On this account animals which get much salt digest their food well, but do not get fat. The red blood-corpuscles become more numerous when salt is taken, and this, along with its other properties, will render it useful in phthisis and diabetes. Very large doses of salt are purgative. Salt food produces constipation, because the salt is absorbed into the blood, and lessens the exosmosis into the intestines. Small doses of salt are, therefore, very serviceable in diarrhœa and dysentery, when other remedies fail.

Chloride of ammonium acts as a diuretic, increases the excretion of urea, quickens the pulse, and seems to raise the temperature. It does not impair digestion. It is not diaphoretic. Large doses induce vomiting, and cause temporary weakness of the lower extremities. Sal ammoniac alone has a specific remedial action in bronchial catarrh; but all ammonium compounds increase expectoration.

Chloride of potassium increases the excretion of urea, but has only a slight diuretic action. It increases the appetite, and causes slight constipation. It slows the heart, and Rabuteau thinks this salt might be used instead of digitalis.

Chloride of magnesium, injected in large doses into the veins, slows the heart like chloride of potassium. Two and a half drachms produces purgation, not accompanied by colicky pains, and not succeeded by constipation. It is also pleasanter to take than the sulphate of magnesium, and Rabuteau, therefore, recommends it in place of the latter salt, in doses of 7 drachms for men, 5½ drachms for women, and half an ounce for children. The dose should be dissolved in a considerable quantity of water.

Ferrous chloride does not coagulate either egg- or serum-albumen, and hinders the coagulation of blood. One grain injected directly into the circulation stops the heart like potassium chloride. The blood remains fluid. Ferrous chloride is chiefly excreted by the intestine. Ferric chloride is reduced by albuminous substances, and undergoes reduction in the body. It is quickly absorbed. Rabuteau recommends the employment of ferrous chloride in medicine, and he finds that reduced iron, ferric oxide, and ferrous carbonate are converted into ferrous chloride in the stomach.

Gold and palladium chlorides are reduced in the body, and when given for a long time produce albuminuria and renal affection. The author considers that there is a particular kind of albuminuria produced by metals, as albumen appears in the urine in poisoning by lead, nitrate of silver, and the salts of uranium and cadmium.

Bromides.—Wood† finds that, by combining bromide of potassium with tincture of cannabis indica, the dose of bromide may be raised to a drachm and a half three times a day without any bad effect following. The bromide in doses of one drachm frequently causes melancholy when given alone. Dacosta thinks that if 40 to 60 grains of bromide

* 'Union Médicale,' lxxiii, p. 150 *et seq.*, 'Comp. Rend.,' lxxiii, 24, p. 1390.

† 'Brit. Med. Journ.,' Oct. 14, 1871, 435.

are given a few hours before a dose of opium they prevent headache, giddiness, and nausea, as well as increase the hypnotic action of the opium. The itching of the skin is also lessened.

Bartholow* considers that the bromides of potassium, sodium, and ammonium agree in their mode of action, and produce similar symptoms. They all produce weakness, trembling, impaired co-ordination, and paralysis. This effect he ascribes to diminution of the irritability of the muscles themselves, and also of the motor nerves. They depress the heart and lower the temperature. They diminish the activity of the brain, and procure sleep. The action on the muscles and nerves is greatest with the employment of the bromides of potassium and ammonium; least on the heart with the use of the sodium salt, and most with the administration of the bromide of ammonium. On the brain bromide of potassium acts most, and bromide of ammonium least; whilst the potassium salt is intermediate in its activity. The toxic action is greatest in bromide of potassium, and least in bromide of sodium.

Arsenic.—Vaudry† finds that arsenious acid, in doses of 1-60th to 1-10th grains, quickens and strengthens the pulse, facilitates respiration, improves the appetite, aids digestion, increases all secretions with the exception of the urine, imparts muscular activity and a general feeling of comfort, and causes an increase of weight. After it has been given for some time the feeling of comfort disappears, but again returns when the dose is increased by 1-30th to 1-15th grain. Doses of 1-6th to 2-5th grains cause disturbance of the intestinal canal. In some persons even 1-12th grain will occasion diarrhœa. The author considers the effect of arsenic on respiration to be due to stimulation of the vagus. Animals gradually acquire a tolerance of arsenic.

Arsenate of quinine.—Prof. Giov‡ has given this salt successfully in cases of neuralgia involving the brachial plexus, in doses of $1\frac{1}{2}$—2 grains, the treatment being continued for eight or ten days.

Mercury.—Dr. J. H. Bennett§ records experiments which show that calomel, blue pill, and corrosive sublimate, digested in the stomach, do not irritate the orifice of the common bile duct in the duodenum, nor does their application or any other kind of local irritation cause increased secretion or flow of bile into the duodenum. The gall-bladder is not contractile, and therefore does not contract on the application of either direct or reflex irritation. Pressure on the gall-bladder or liver, in consequence of extensive contractions of the neighbouring muscles, causes a copious flow of bile into the duodenum.

Byasson‖ finds that corrosive sublimate, when given by the mouth, appears in the urine in two hours and in the saliva four hours after its administration. It does not appear in the sweat. Its elimination is completed in twenty-four hours.

Alcohol.—Parkes and Wollowicz¶ have investigated the action of alcohol when taken in the form of claret as well as in the form of

* 'Amer. Journ. Med. Sc.,' 1871, p. 359.
† 'Virchow and Hirsch's Jahresber.,' 1871, p. 312.
‡ 'Schmidt's Jahrb.,' cli, p. 271.
§ 'Brit. Med. Journ.,' 1871, p. 1.
‖ 'Journ. de l'Anat. et de Physiol.,' 1872, p. 500.
¶ 'Pr. Roy. Soc.,' xviii, p. 362.

brandy. The effects of both of these are the same in many respects. They quicken the heart and dilate the vessels. There was no distinct alteration in temperature in the axilla or rectum, nor any change in the excretion of nitrogen or phosphates either in the urine or fæces. They do not consider the dietetic effects of claret to be the same as those of brandy and water, but the differences could not be discovered by the method of experimentation they employed. Ten ounces of claret containing about one fluid ounce of pure alcohol caused no unpleasant heat or flushing. Twenty ounces produced both. Alcohol began to appear in the urine. The authors consider that the use of alcohol by healthy persons is unnecessary and may be injurious.

Bouvier‡ found that when fever was produced in animals by the injection of putrid matters, those which were treated with alcohol resisted the fever much longer than others. Their temperature could be reduced several degrees by the administration of alcohol. He obtained good results from the use of alcohol in typhus, but not in intermittent fever.

Rabow† found that wine and brandy, in doses of two or three tablespoonfuls, increased the temperature in 23 cases, and left it unchanged in 2. The rise was generally 0·4—0·7° Fahr., but often only 0·2° Fahr. A rise of temperature was also noticed during collapse, when the administration of wine was attended with much benefit.

Manizu ‡ and Fokker § found little change in the temperature of the human body after the moderate use of alcohol, but Fokker observed a slight fall in a dog. It somewhat diminished the excretion of urea in the dog, and the effect of a given quantity was the same whether it were given in repeated small doses or in one large one. Fokker regards it as food, and indicated in all diseases where there is danger of death from inanition. He does not consider it to act as a febrifuge.

Danet || gives several cases showing that the mortality in pneumonia is least when patients are treated with alcohol and blisters, greater with digitalis and blisters, and greatest with antimonials and blisters. He has also seen benefit from the use of alcohol in congestion of the lungs, and mentions the beneficial effects of its local application in cases of purulent infection.

Subbotin¶ finds, from experiments on rabbits, that a considerable quantity of alcohol is eliminated by the skin and lungs in the first five hours after its introduction into the body. Twice as much alcohol is eliminated by the skin and lungs as by the kidneys. This result is in direct opposition to the statement of Lallemand, Perrin, and Duroy, that alcohol is excreted chiefly by the kidneys. Part of the alcohol probably undergoes combustion in the body.

Chloral hydrate.—Dr. A. Monti** contributes a paper on the employment of chloral hydrate in the diseases of children. This observer noted that in children, when the dose was proportioned to their age,

* 'Centralblatt f. d. Med. Wiss.,' p. 801.
† 'Berl. Klin. Wchnschr.,' 1871, No. 22, p. 257.
‡ 'Diss. Bonn.,' 1870, 'Virchow and Hirsch's Jahresber.,' 1871, p. 324.
§ 'Virchow and Hirsch's Jahresber.,' 1871, p. 324.
|| 'Gaz. des Hôp.,' 1871, 418, 421; 'Ztschr. f. Biologie,' vii, p. 361.
¶ 'Zeitsch. f. Biologie,' vii, p. 361.
** 'Jahrb. f. Kinderheilk.,' v, p. 63.

within an hour and a half there supervened slight suffusion of the countenance and a quasi-intoxicated state, passing into sound sleep. The pulse, which at first was somewhat quickened, was afterwards retarded, the respirations were unaffected, and the temperature of the body sank. It was only after very large doses of the hydrate that the numbness of the skin, followed by anæsthesia, was preceded by excitement and contraction of the pupils. The sleep induced is quite normal, and on awakening there is neither headache nor cerebral congestion, nor any other disturbance of function. Chloral hydrate sometimes induces vomiting, but never diarrhœa. The dose is 1 to 4 grains for a new-born infant; up to one year, 1½ to 5 grains; from one to five years, 3 to 10 grains; and for children from five to twelve years of age, from 8 to 18 grains. To infants at the breast 1 grain was given every fifteen or thirty minutes, till the desired result was obtained. His conclusions are summarised as follows:—Sleep is as readily induced by chloral hydrate in children as in adults. In symptomatic as well as in idiopathic convulsions it acts symptomatically, and is contra-indicated only where there is inflammatory disease of the bronchi, lungs, or heart, and the remedy must be used with caution where the child is anæmic or atrophic. Chloral is useful in laryngismus stridulus, chorea, and hooping-cough, except in the third stage of this last, when it acts prejudicially by checking expectoration. It proved useless as an anæsthetic in surgical operations and in idiopathic and traumatic tetanus.

Husemann * contributes a long and able résumé of all that is known regarding the pharmacological and toxicological relations of chloral hydrate. A vast amount of literature has been laid under contribution for the preparation of his monograph.

Anæsthetics.—Kohler† reviews all the recent work that has been done with anæsthetics. His memoir is a valuable one, and is enriched with cuts of the various forms of apparatus that have been designed for the inhalation of anæsthetics.

Byasson and Follet ‡ have compared the action of trichloracetate of sodium, chloral, and chloroform. The effect of tricloracetate of sodium is more like that of chloroform than of chloral. Chloroform given by inhalation is the most powerful anæsthetic, but when given subcutaneously it has less action than either of the other two. Chloral, when given by the stomach, is a more powerful soporific than the others, but has less anæsthetic power than chloroform.

The authors distinguish three degrees of action in chloral. In the first, it acts as a slight soporific and sedative of the sensory nervous system. This effect is often accompanied by agitation like that occurring during unpleasant dreams. In the second, it has a powerful soporific action, lessens sensibility considerably, and produces calm and deep sleep. This may be kept up for a considerable time, without danger, by giving a fresh dose when the effect of one is passing off. In the third, it produces complete anæsthesia, entire loss of general sensibility, and muscular relaxation. Death almost always occurs after

* 'Schmidt's Jahrb.,' cli, p. 81.
† Ibid., p. 193.
‡ 'Journ. de l'Anat. et de Physiol.,' 1870, p. 570.

this stage has been reached. It may sometimes be averted by artificial respiration or inhalation of oxygen.

Bromal hydrate.—Berti and Namias* have investigated the therapeutical properties of this proposed remedy, and arrive at the following conclusions. 1. Even in small doses, and well diluted, bromal hydrate produces burning pain in the throat, pyrosis, vomiting, and diarrhœa. 2. In an emulsion (1 to 300) its use is barely supportable. Even after long and cautious administration it produces vomiting and purgation. 3. In relatively large doses it does not induce sleep, or abate restlessness. It is useless in epilepsy. 4. Subcutaneously injected it excites local inflammation, and exercises little action in the nervous system. 5. Rubbed up with an equal quantity of fatty matter, and applied locally, it produces erythema of the skin, but it is not so safe an application as a sinapism. 6. Bromal hydrate offers no advantages as a therapeutic remedy over other safer and speedier remedies. 7. Toxic doses induce stupor, paralysis of motion and sensation, and rapid or sudden cessation of the respiratory movements, ending in death.

Croton chloral.—Liebreich† finds that croton chloral produces in animals, first, anæsthesia of the head, then loss of reflex movements throughout the body, and, finally, death by paralysis of the medulla oblongata. In man it produces anæsthesia of the fifth nerve, while the sensibility of the body and the pulse and respiration remain unaffected. He considers that it is split up in the blood into formic ether.

Byasson‡ supposes that the action of chloral is partly due to the formic acid, which it yields along with chloroform when decomposed in the blood. This supposition he has confirmed by the administration of formic ether, which also yields formic acid in the blood. When given to animals, either by inhalation or subcutaneously, it produces symptoms of asphyxia, diminution of temperature, partial flaccidity of muscles, and lessens sensibility without completely destroying it. In man it caused a tendency to sleep, and formic acid appeared in the urine.

Bichloride of methylene has been recommended as an anæsthetic by Gaine§ and Spencer Wells,‖ but its administration is not without danger, death having occurred¶ during anæsthesia produced by it.

Methylamine.—Fargier-Lagrange** finds that trimethylamine, in doses of about 9 grains daily, lessens pain in rheumatism. It slows the respiration and pulse, and reduces the temperature.

Nitrite of amyl.—H. C. Wood, jun.,†† finds that nitrite of amyl greatly lessens, but does not destroy, the irritability of nerves and muscles. The power of the central motor ganglia is also much diminished, but sensibility is only slightly lessened. He thinks with Brunton that the diminution in the blood-pressure which nitrate of

* 'Journ. de Bruxell.,' lii, p. 328; 'Schmidt's Jahrb.,' cliii, p. 141.
† 'Comp. Rend.,' 1872, p. 1202.
‡ Ibid., 1871, lxxii, p. 742.
§ 'Med. Times and Gaz.,' 1871, p. 232.
‖ 'Lancet,' 1871, i, p. 591.
¶ 'Brit. Med. Journ.,' 1871, p. 457.
** 'Virchow and Hirsch's Jahresber.,' 1871, p. 341.
†† 'Amer. Journ. Med. Sc.,' July, 1871, p. 39, and October, p. 359.

amyl produces is chiefly due to dilation of the capillaries, but considers that the power of the heart is also lessened by the action of the drug on its muscular substance. When directly applied to nerves, muscles, or the heart, it lessens their irritability, without causing any temporary increase at first. It hinders oxidation both within and without the body, and diminishes the temperature and excretion of carbonic acid. When the spinal cord of animals is divided, and they are laid in a warm place, their temperature rises much, and they rapidly decompose. Both of these effects are prevented by nitrite of amyl. He confirms Brunton's statements regarding its beneficial effects in angina pectoris, and recommends it in synocha and tetanus.

Talfourd Jones* gives cases of benefit from the use of this remedy in spasmodic asthma, epilepsy, laryngismus stridulus, colic, and hemicrania. He recommends it in colic and cholera. Goodhart† noticed a fall of temperature from its inhalation.

Lauder Brunton‡ mentions that nitrite of amyl was tried in cholera by Hayden and Cruise without effect. He discusses the symptoms and pathology of cholera, and ascribes the difficulty in breathing to contraction of the pulmonary vessels and obstruction to the flow of blood through the lungs. He shows by experiment that nitrite of amyl dilates the pulmonary as well as the systemic vessels. The fact that it does not lessen the difficulty in breathing, although it possesses this power, is explained by its forming a compound with the hæmoglobin of the blood and preventing oxidation, as shown by Gamgee. He, therefore, recommends it to be given by the mouth, or subcutaneously if used in cholera.

Benzine.—This liquid has been found§ useful in allaying the paroxysms of hooping-cough, in doses of 10—20 drops suspended in syrup or mucilage; or the vapour of benzine may be inhaled.

Tar.—Magnes-Lahens‖ recommends a convenient method of administering this substance. The tar is triturated with charcoal till the mass no longer soils the hand, and has a granular aspect similar to gunpowder. The powder can then be administered in various ways—inhaled, smoked, taken into the stomach in various menstrua, &c.

Turpentine.—Warburton Begbie¶ considers that turpentine is absorbed by the skin when applied externally, and eliminated by it to some extent when administered internally. He regards the occurrence of a smell of violets in the urine as indicating to a certain extent a healthy condition of the kidneys. The external application of turpentine is not absolutely counter-indicated by renal disease, as the drug is eliminated to a great extent by the lungs and intestines. The author recommends it as the most trustworthy remedy in purpura hæmorrhagica associated with hæmaturia. In asthenic typhus with subsultus, stupor, or delirium, and in puerperal fever, he has found it efficacious. In doses of 10—30 drops, thrice a day, it is of great service in sciatica,

* 'Practitioner,' October, 1871, p. 213.
† Ibid., p. 12.
‡ 'Brit. Med. Journ.,' 1872, p. 42.
§ 'Ann. de Thérap.,' 1870-71, p. 74.
‖ 'Bull de Thérap., lxxx, 1871, p. 213, 313.
¶ 'Edin. Med. Journ.,' 1871, ii, p. 39.

[illegible]

given along with chloroform much smaller doses of chloroform are required to produce complete anæsthesia than when it is given alone, and the risk of death occurring is thus diminished. The anæsthesia lasts a long time, and may be prolonged still farther by small doses of chloroform.

Rabuteau * finds nearly all the principles of opium, with the exception of narcotine, aid the action of chloroform. Morphine is the most powerful in this respect, but narceine is nearly equal to it. Codeine and papaverine have only a feeble action.

Apomorphine.—The action of this substance has been investigated by Vincent Silbert.† The minimum dose required to produce vomiting, when injected subcutaneously, is about one tenth of a grain. A grain and a half given by the stomach produced only nausea in one case, but much smaller doses may sometimes produce vomiting.

Quehl ‡ finds that the dose required for subcutaneous injection is 1-120th to 1-30th of a grain; by the mouth, $1\frac{3}{4}$ to $2\frac{3}{4}$ grains; and by the rectum, $2\frac{3}{4}$ to $5\frac{1}{2}$ grains. No tolerance is produced by its long-continued use, nor does it injure health. Excessive doses, 3 grains or more, do not produce vomiting at all, but cause staggering, weakness, and *manège* movements. Vomiting is also prevented by division of the vagi nerves.

Blaser § recommends simple syrup as the best solvent for apomorphine.

Muscarine.—This alkaloid has its chemical characteristic detailed by Ruckert.‖ It is recommended by Deneffe ¶ in delirium tremens. He gives it in doses of 45 to 60 grains daily, in the form of pill.

Camphor.—Dr. O. Heubner** has investigated the action of camphor on the heart, and obtained results of much therapeutical interest. The results were obtained by experimenting on frogs. He finds that camphor renders the cardiac contractions more energetic, the pauses between the contractions of longer duration, and that the heart bestows upon the circulation greater rapidity.

Monobromide of camphor.—Dr. Wm. A. Hammond †† has tested the alleged efficacy of this medicament, and his experience of its use, though thus far limited, is eminently satisfactory. The preparation used was in beautiful crystals free from the slightest yellow tinge, hence it contained no free bromine. Employed in two cases of infantile convulsions due to the irritation of teething, the bromide prevented the further occurrence of paroxysms which, previously to its administration, had been very frequent. In each case a grain was given every hour, rubbed up with a little mucilage. Three doses were sufficient in one, and two in the other case. In a very obstinate case of hysteria, in the form of paroxysms of weeping and laughing, alternating with

* 'Journ. de l'Anat. et de Physiol.,' loc. cit.
† 'Untersuch. u. d. Wirk. d. Apormorph. Diss. Derpat.,' 1871.
‡ 'Diss. Halle,' 1872.
§ 'Arch. d. Heilk.,' xiii, p. 272.
‖ 'New Rep. Pharm.,' xxi, p. 193.
¶ 'Presse Méd. Belge,' l, p. 405.
** 'Arch. d. Heilk.,' xi, p. 334.
†† 'New York Med. Journ.,' xv, p. 522.

epileptiform and choreiform convulsions, where the acts usually lasted from five to eleven days, uninfluenced by medication or moral suasion, the influence of the drug was distinctly perceived after two doses (four grains every hour) were taken, but ten were necessary to entirely break off the attack. Dr. Hammond also speaks highly of the bromide in headache from mental excitement. In wakefulness it is inferior to other bromides, as, *e.g.* bromide of calcium.

Digitalis.—Dr. Rudolph Boehm,* of Wurzburg, has investigated the physiological actions of digitalis and digitalin. He finds that digitalin increases the irritability of the inhibitory nerve-centres situated in the heart, and exercises a specific action on the muscular fibres of the heart, first of all increasing their contractility, next rendering their contractions irregular, and finally conferring upon them a peculiar rigidity. The essay is a long and valuable one.

Dr. A. Weil † contributes a paper on the physiological actions of this drug. His memoir is very instructive, but as the object of the experiments, made upon frogs, was to demonstrate the mechanism of the reflex inhibitory centres (reflexhemmungs mechanismen), we do not think it necessary to do more than make a short reference to them. He finds—(1) That small doses of digitalin (1-60th of a grain) diminish very considerably in decapitated "reflex frogs" (a term applied to to frogs in which, on the previous day, the cerebral hemispheres had been separated by cutting through the bones) the frequency of the heart's action, the heart's beats being stopped sooner in the decapitated animals than in those which had not been so treated. The same occurred with doses of 1-30th of a grain. (2) Small as well as large doses act as excitants of the inhibitory centres. (3) Large and small doses induce a period at which division of the medulla oblongata no longer restores the reflex irritability, at which period also the irritation of the inhibitory centres has given place to paralysis of the cord. Previous to this, the action of the digitalis is limited to the brain, so far as reflex excitation is concerned.

Gourvat ‡ finds that a moderate quantity of digitalin paralyses the motor nerves of voluntary muscles in frogs, and that a large quantity destroys the irritability of the muscles themselves. It seems to act as a stimulant to involuntary muscles. It causes contraction of the arterioles and raises the blood pressure. The cardiac pulsations become slower, stronger, and more regular, after a moderate dose. The slowness of the pulse is due to the increased blood pressure, and is proportional to this. The contraction of the arterioles produced by a moderate dose soon passes off, but lasts longer when a large dose has been given. After the contraction has ceased they become paralysed and dilated. Their contraction causes diminution of the sweat and the secretions of mucous membranes and glands, but the amount of urine is increased.

Ackermann § has investigated the action of digitalin—1st, on the heart; 2nd, on the arteries; and 3rd, on the temperature. He finds

* 'Arch. f. Anat.,' v, p. 153.
† 'Arch. f. Physiol.,' 1871, p. 252.
‡ 'Gaz. Med.,' 1871, No. 26, *et seq.*; 'Gaz. des Hôp.,' cxxxii, p. 526.
§ 'Berl. Klin. Wchnschr.,' 1872, 27; 'Deut. Arch. f. Klin. Med.,' xi, p. 125.

—(1) That after the injection of a large dose of digitalin (0·05 gram.) into the veins the pulse becomes very slow, then quicker, and then slow again. The first slowing of the pulse is caused by the digitalin acting directly on the vagus roots, and stimulating them; the quickening is caused by the drug paralysing the ends of the vagus in the heart, and, at the same time, stimulating the accelerating nerves. The second slowing is due to paralysis of the muscular substance of the heart. (2) Large doses of digitalin increase the pressure of blood in the arteries by causing contraction of the arterioles. It does not cause them to contract by stimulating the vasor-motor centre in the medulla oblongata, but by acting on the ends of the vaso-motor nerves in the vessels or on the muscular fibres in their walls. (3) It lessens the temperature of the interior of the body and increases that of the surface. It probably does this by quickening the circulation through the skin.

Lauder Brunton and A. B. Meyer * bring forward a new proof that digitalin causes contraction of the arterioles. They find that the blood pressure rises after its injection, but the pulse wave becomes smaller. This shows that the rise is not caused by the heart. At the same time each wave descends more gradually, showing that the blood is escaping more slowly through the arterioles. As the blood pressure is high, the slow flow of the blood through the arterioles can only be caused by their contraction. The pulse is rendered slow. This is partly due to the increased blood pressure.

* 'Journ. of Anat. and Physiol.,' 1872, p. 134.

REPORT ON PUBLIC HEALTH.

BY

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Cholera.

Cholera is the disease which has attracted the largest amount of attention from sanitarians during the last two years, and the literature of the subject has been very abundant.

The recent diffusion of cholera in Europe.—A report of remarkable interest on the recent diffusion of cholera in Europe* has been sent by Mr. J. Netten Radcliffe to Mr. Simon, who has forwarded the report to the president of the Local Government Board, with a recommendation that it be brought under the official notice of foreign governments. The report commences with an account of the first appearance and subsequent progress of the epidemic which, beginning in South Russia at Kiev, in the autumn of 1869, spread during the months of November and December into several of the districts in South, Central, and West Russia. In January of the following year cholera appeared in Moscow, and in February cases were reported from Novgorod. During the summer and autumn the disease spread actively, so that in 1870 cholera prevailed with hardly a break—if indeed with any break—throughout the tract of country lying between Moscow and the north coasts of the Black Sea and the Sea of Azov. To the north and west of this tract it had appeared at St. Petersburg; and to the south and east it appeared along the north-east coast of the Black Sea, from the Straits of Kertch to Poti, through the valley of the Rion across Transcaucasia to the Persian frontier of the empire. In 1871 cholera was generally diffused throughout Russian Europe. It spread also into Siberia, appeared in the autumn at Astrachan, prevailed in Ciscaucasia along the course of the Kouban, and in Transcaucasia was present at Baku on the west coast of the Caspian, and at Erivan. During the whole progress of this remarkable diffusion of cholera, the disease did not spread into Europe beyond the limits of the Russian empire, except at four points. In July it passed the Polish frontier into East Prussia, and on the 24th of the month attacked Königsberg. In August it extended to Memel, Dantzic, Elbing, Stettin, Swinemünde,

* 'Parliamentary Paper.'

and the adjacent districts; scattered cases were also recorded in Berlin, and outbreaks of the disease occurred in Hamburg and Altona.

On the 3rd of September it appeared at Hernosand in Sweden, and at the same date at Constantinople. In October, cholera was reported to be present on the Danube at Sulina and Galatz, and in November at Tultcha. At the commencement of August an outbreak occurred in Asia Minor at Brusa in Anatolia, a commercial town of considerable size, with a port at Mundania on the Sea of Marmora. At this time cholera was prevalent at the ports of Kherson, Nicolaiev, Taganrog, and Rostov on the Don to the north; and at Bagdad, and several points in Turkish Kurdistan, in the vicinity of the Persian frontier, and in the province of Azerbijan in Persia to the east and south-east. Previous to the outbreak, cholera had spread largely along the courses of the Euphrates and Tigris within the pashalik of Bagdad, and had extended into Eastern and Northern Arabia. From Brusa, cholera spread to the surrounding districts; and, subsequently to the appearance of the disease at Constantinople, cases occurred in the lazaret at Salonica and in the vicinity of that town, and in the lazaret at Varna in European Turkey, in the island of Cerigo, at St. Jean d'Acre on the east coast of Asia Minor, and at Samsoun and Trebizonde on the north coast, and at Amasia in the interior of Anatolia. The cases at Salonica and Varna occurred among passengers who had recently arrived there by ordinary steam transit from Constantinople. The first case at St. Jean d'Acre was landed from a Russian steam-vessel coming also from Constantinople. On the 10th of October an ill-furnished emigrant steamship sailed from Stettin for New York, touching at Copenhagen and Christiansund. About a week after this vessel had left Christiansund cholera appeared among the passengers, 610 in number. She put into Halifax, Nova Scotia, on the 6th of November, and introduced cholera into that city and into the village of Chezetcook, twenty-five miles north of Halifax. In the course of September two cases of cholera were imported by steamships from Hamburg to England, both into the port of Hartlepool. One of these cases, which ended fatally, was imported on the 7th of the month; the other, which recovered, on the 18th.

While these events were taking place in Europe, cholera was also spreading rapidly from the head of the Persian Gulf along the courses of the Shat-el-Arab, the Euphrates, and the Tigris, within the pashalik of Bagdad, in which province the disease had appeared at Meshed Ali, in December of the previous year (1870). Early in the summer of 1871 a Turkish expeditionary force became affected with cholera at Bassora, as it was about to embark for Koweyt, and carried the disease into Eastern Arabia. About the middle of June cholora broke out at Hayel in the Djebel Shomar, Northern Arabia, introduced there, it is stated, by an infected caravan coming from Meshed Hussein. From Hayel the disease passed, two months later, to Khaiber, three days' journey from Medina, and in September it broke out in the latter town, at a time when numerous pilgrims were there. In November cases are stated to have occurred at Mecca, and in December a severe outbreak occurred on the east coast of the Red Sea, at Gonfudah, south of

Jedda. The disease appeared at Gonfudah among troops recently arrived from Constantinople, and it prevailed chiefly among the garrison. Cases subsequently occurred at Jedda and Yembo towards the close of the year.

The source of the remarkable diffusion of cholera in Europe during 1869, 1870, and 1871, is a question of considerable interest, and of important practical bearing. Dr. Pelikan, the Director of the Imperial Medical Department of Russia, is of opinion that the diffusion was not a new epidemic, but that it was a recrudescence of the epidemic of 1865, an opinion which is shared by Dr. Fauvel.* Mr. Radcliffe is unable to accept this theory as sufficient to explain all the phenomena of the diffusion. He calls attention to the fact that this diffusion was preceded by the most considerable development of cholera in North Persia, particularly in the Caspian provinces of the kingdom, that had occurred for several years. Previous outbreaks of cholera in North Persia of like extent had been invariably followed or accompanied by the appearance of the disease in Russia. The history of cholera in Persia since 1865 is of much interest in relation to the subject under consideration. The persistence and recurring activity of cholera in Persia from 1866 to 1871, although paralleled by previous periods of long-continued prevalence of the disease—for example, from 1851 to 1861—have led some observers on the spot to question whether the malady is not becoming naturalised in Persia. From 1865 to 1868 the general movement of cholera in Persia had been from west to east.

With the return of a band of pilgrims from Meshed in July, 1868, when cholera raged with great violence, a reverse movement began, and with it indications of greater diffusiveness of the malady. This diffusion, in the course of 1869, spread over the greater portion of Northern, Western, and Central Persia, and throughout Irak-Arabi, in the pashalik of Bagdad.

Mr. Radcliffe is of opinion that the prevalence of cholera in Persia cannot be rightly studied without, at the same time, a study of the prevalence of the disease in India. Now, in 1867, cholera, which had broken out with much fierceness among the multitude of pilgrims assembled at Hurdwar for the great annual religious Hindu fair held there, followed in the track of the pilgrims returning northwards into Afghanistan, and towards the close of the year it was prevalent at Cabul. In 1869 it again became epidemic over the whole of the Bombay Presidency and Northern India, and spread anew into Afghanistan. The great trade route between Persia and India through Afghanistan, by way of Herat to Meshed, has been the track chiefly followed in previous invasions of Persia by cholera migrating from Northern India; and Meshed, from its large commerce, as the principal centre of trade between the two countries and Afghanistan, and also from its being the focus of a great pilgrimage from all parts of Persia, has always played a very important part in the diffusion of cholera when the disease has been introduced there.

Mr. Radcliffe thinks that the outbreak of cholera at Meshed in 1868, and the subsequent diffusion of the disease from that city was more pro-

* 'Bulletin de l'Académie de Médecine,' xxxvi, 694.

bably an extension of the outbreak in Northern India in 1867, than a revivication of the epidemic of 1865-67. At any rate, in Russia as in Persia, before adopting the recrudescence theory, the better understood effects of reimportation during the migratory period of the disease must be more clearly excluded.

The reappearance of cholera in an active form in Russia in 1869, when the disease was prevalent in Northern Persia, is sufficiently intelligible in the light of previous diffusions; but the locality of the reappearance, Kiev, an inland town of South Russia, and the absence of any extension of cholera across the Russo-Persian frontier or to the Russian coast of the Caspian, in either 1868 or 1869, appeared at first sight to shut out absolutely any connection by importation in the ordinary course of traffic between the two countries.

The result of investigations into the lines of traffic between the two countries was to elicit the important fact that since 1864 there had been a great displacement of traffic between Persia and Russia in Europe. Previous to the date given the main lines of traffic were by way of Astrachan and by way of Trebizonde; but since 1864 the traffic has been largely diverted from these routes to routes traversing Transcaucasia to the coast of the Black Sea at Poti, and thence to the ports of South Russia. This route has been greatly promoted by the Russian Government, and still further to develop the traffic from Persia along the Poti route, a railway has been projected from Poti to Baku, by way of Tiflis and Elizabethpol, and will shortly be opened.

It is a most noteworthy fact that the outbreak of cholera in South Russia should coincide with the wide prevalence of the disease in North Persia, and the establishment of a direct and more rapidly traversed route of traffic between South Russia and Persia. Mr. Radcliffe justly suggests that a more probable explanation of the outbreak in South Russia in 1869 or 1870, and of the subsequent large diffusion of the disease in Northern Europe, is to be sought in the movement of cholera, in some way (from imperfection of data) as yet unknown, along the route into Russia, rather than the assumption, less consistent with our knowledge of epidemic diffusion of the disease beyond the limits of India, of the recrudescence of the well-nigh extinguished epidemic of 1865.

If this suggestion be correct, the establishment of the route by way of Poti and the ports of South Russia, as the principal line of traffic between Persia and Russia, is a matter which seriously affects the sanitary welfare of Europe, particularly when considered in connection with the development of railway communication between Central Europe and the Russian Coast of the Black Sea. With the completion of the Transcaucasian railway it may be anticipated that "contagions current in Persia will become current in Europe."

Cholera on the Upper Nile.—Of great interest in connection with the events above narrated by Mr. Radcliffe are the facts relating to the recent prevalence of cholera in Nubia.* Cholera broke out in the Taka country, in Upper Nubia, in June, 1872. This country, of which the capital town is Karsala, lies between the rivers Atoara and Barca, and communication between it and Egypt, is chiefly maintained through the

* 'Cholera on the Upper Nile," The 'Times,' January 3, 1872.

port of Souakin, by way of the Red Sea. The Taka country is a dead flat converted in the rainy season into an impracticable slough, but at present under process of reclamation by the Khedive for the purposes of cotton cultivation. It was among the labourers engaged in these works that the outbreak of cholera occurred, and, according to reports, brought among them by camel drivers from Souakin. Cholera prevailed among the workers from the close of June to the close of August, when it seemingly ceased; but in October the disease reappeared, and spread among the native tribes of the Taka country, This second outbreak was of great severity, and it probably did not come to an end till the beginning of December. From the Taka country cholera, in August, extended to Berber. There it broke out with violence, and prevailed until the beginning of October, causing a great mortality. On the 3rd and 4th of September the deaths from cholera were reported to have been 200. In September the disease attacked the tribes occupying the country west of Berber, and it was carried by them southwards towards Kordofan, and northwards into Dongola. Up the Nile, cholera appears to have passed from Berber into the Halfaya district, where the disease was probably present in November, and down the Nile, scattered cases were reported as low as Korosko.

The probable source of this outbreak forms one of the most interesting episodes in the history of the late westward diffusion of cholera. As already related in Mr. Radcliffe's report, cholera spreading from the head of the Persian Gulf was carried to Mecca and Gonfudah at the close of 1871. From Gonfudah the disease was carried by the troops to Hodeida in the following February. In Mecca the malady was supposed to have disappeared at the close of January, 1872. From the 19th to the 23rd of February a great religious festival was held in Mecca, at which upwards of 80,000 pilgrims were congregated in and around the city during those days. On the 27th of February cholera reappeared in Mecca, the earliest cases being observed among the Takruri pilgrims; that is to say, negro pilgrims from Nubia and Central Africa. These were in a most destitute condition. The number of pilgrims from the west coast of the Red Sea who attended the festival at Mecca in 1872 exceeded 2500. Before the reappearance of cholera the greater number of the pilgrims had left Mecca. Two great caravans, the Damascus and the Egyptian had started about the 25th of February. Hardly had these caravans got clear of the city when cholera appeared among them, causing great mortality. Cholera was introduced by them into Medina. In the track of the returning pilgrims, who diverged from Medina to the sea coast, cholera reappeared at Gambo in March, and did not cease until April. Jedda, however, escaped. In April, also, cholera is reported to have ceased in Hodeida.

The outbreak of cholera in the Taka country followed upon the series of events here related, and the disease is surmised to have been carried to Taka from Hodeida by way of Souakin. The particular steps of the transmission are not known. The time of the outbreak followed close upon the time of the return and passage of Takruri pilgrims from Mecca by the Souakin route; and it is known that cholera first shewed itself among these pilgrims when, at the close of February, it reappeared in

that city. To what extent Europe owes its safety from last year's outbreak of cholera in the Hedjaz to the energetic measures adopted by the Egyptian Government, to prevent the introduction of infected pilgrims into Egypt, and their passage through the Suez Canal to ports in the Mediterranean, it would be difficult to say. But the preventive measures taken were well conceived and well carried out, and they offered the greatest chance of protection to Europe from the importation of the pestilence.

The comparatively light diffusion of cholera in Upper Nubia appears to have been to some extent due to the military cordons established by the Egytian Government.

Cholera in the British islands. — Considerable apprehension was entertained in this country during the course of both 1871 and 1872 of an invasion of our shores by Asiatic cholera; and, indeed, England was on more than one occasion invaded by the disease, though, thanks to the precautions taken, no extension of the disease occurred.

Having for nearly two years been in Russia,* and since August, 1870, more or less in St. Petersburg, cholera in the spring and early summer of 1871 spread somewhat considerably in the Baltic provinces of Russia, and at the end of July began to touch the contiguous parts of Germany, when, soon after, Königsberg suffered most severely. With cholera actually epidemic at St. Petersburg, Cronstadt and Riga, and likely soon to become epidemic at parts still nearer to England, it was evident that ships from the Baltic might in certain cases be a source of danger to this country. Since quarantine in this country was not to be thought of, the steps taken by the British Government were mainly these:—Local authorities (and especially port authorities) were warned of the danger in question, and were advised of the precautions which in the present state of our knowledge are regarded as of most value against the infection of the disease; and every legally possible facility was given for the local exercise of such precautions. Facilities were given for the examination of ships arriving from the Baltic; and a central inspector visited our ports to confer with the local authorities as to the provision of hospital accommodation, &c. Never before was the extension of infection from the first imported cases so successfully and completely met.

Ground water.—Pettenkofer† returns to the subject of the influence of ground water on cholera and typhoid fever in a paper on typhoid, cholera, and ground water in Zürich. Spite of the opposition his views have met with, and the facts urged in refutation of the validity of his conclusions, Pettenkofer still adheres to his now well-known views on this subject.

Diffusion of cholera in India.—Pettenkofer‡ in a small work has entered into an examination of the recent reports on cholera in India by Macpherson, Murray, Macnamara, Cunningham, Lewis, Bryden, &c., and

* "First Report of the Local Government Board," p. lv.

† 'Zeitschrift f. Biologie,' vii, p. 86.

‡ 'Verbreitungsart der Cholera in Indien.' Braunschweig. 1871. 'The Diffusion of Cholera in India.' Translation in 'Indian Annals of Med. Science,' No. xxix, pp. 176—300.

states his own conclusions in the following theses. (1) In India there are one or more regions in which cholera has had its endemic site since the most ancient times with a prevalence fluctuating according to the season of the year. The cause of the disease and its endemicity cannot be looked for in the people living there, but is to be looked for in a yet unknown relation between the specific disease-germ and the soil and climate. (2) Cholera in India has at all times periodically diffused itself in the form of epidemics from the endemic districts over other tracts of land. As the means of diffusion some people in India assume the currents of air, specially the monsoons (the miasmatists, Bryden), others human intercourse, specially through the excreta of cholera patients (contagionists, Macnamara), while others allow the diffusion in both these ways. The proposition goes on to state that neither of these views sufficiently explains the facts, but that along with human intercourse there must be certain local and periodical conditions, and that diffusion by currents of air alone is certainly not in harmony with what has been observed in India. (3) That which determines the local thriving of the cholera germ, which may be called x, does not proceed from the human organism, but from the localities due to yet unascertained processes in the soil. This principle applies not only to the endemic circle but to all places in which epidemics of cholera are developed. The substratum furnished by the locality or soil, on which the local and periodical disposition for cholera epidemics is dependent, may be called y. The cholera germ x is able to travel with human beings, the true substratum y is associated with the locality. (4) That part of the cholera process which goes on in the soil, and on which the periodic rhythma of cholera prevalence is essentially dependent, both in the endemic and epidemic regions, requires, in addition to other conditions, a certain medium amount of soil moisture. Both great persistent dryness (as in deserts) and excessive continued moisture (as in the Ganges Delta towards the end of the rains) of the soil are alike unfavorable to cholera. On this account, it happens that in the dry and hot districts with scanty rain-fall, which abound in Upper India, cholera usually prevails in association with the rains (summer or monsoon cholera), whilst in the moist and hot regions with very abundant rain-fall prevailing in Lower Bengal, cholera abounds in the rainless spring (spring cholera of Calcutta) and is put to flight again by the monsoon rains. Places which, like Madras, under otherwise like conditions, stand as regards their rain-fall in the mean between Lahore and Calcutta, show also, with tolerable regularity, spring and summer cholera in one and the same year.

Whenever, as the result of altered conditions of rain and temperature, the moisture or soil-water conditions in a place deviate from the formerly existing rule, the periodical rhythma and prevalence of cholera of that place are likewise altered, so that such a place, for example Bombay, instead of prevalent spring cholera, can also exceptionally have monsoon cholera and *vice versâ*.

One and the same amount of rain acts on differently associated soils, and on soils which differ in their dryness or moisture in entirely different ways. Just such diversities as are dependent on the reception of water

by various soils, are also rendered prevalent by the dispersion of it into the atmosphere through evaporation. Soil and soil-water conditions may be regarded as causes of temporary or permanent immunity. (5) In addition to the cholera germ x which is diffused by intercourse, and the cholera substratum y which represents the local and periodical disposition, the number of attacks is essentially dependent on the individual predisposition, which is very considerably less among the native Indians than among the Europeans. Among the natives, again, the inhabitants of hill countries show a greater individual predisposition than the inhabitants of the plains. (6) Ships at sea never generate y, or, in other words, they are never in themselves possessed of the local or periodical disposition, and are, therefore, to be regarded as exempt localities. In so far as cholera occurs on board ships, it always originates on shore. In the greater majority of cases the persons who are attacked on board a ship were already infected when they came on board, and are unable to transfer the disease to others who were not on shore, or who, previous to embarcation, were in no infected place. Only in a very few cases do people sicken who have not been on shore, and these cases also take place invariably only subsequent to some communication of the ship with the infected land. In these cases, moreover, it must not be assumed that the infection occurred independent of the co-operation of the soil (y), or that they prove it to be unnecessary, but that the communication with the land has procured a sufficient quantity of the infectious materials, which was generated there in the ordinary manner (from x and y), and which, probably under certain circumstances, must enter into some further alteration, or attain a certain ripeness on board the ship before the infection can make itself known. (7) The use of various drinking waters, possible contaminated with the excretion of cholera patients, can in nowise explain the local and periodical appearance of cholera in India.

For the further details of this elaborate paper we would refer readers to the original itself, or to the admirable translation by Dr. Cunningham from which we have quoted.

Dr. Cunningham* has himself written an excellent report on cholera. This observer states that in the town of Madras, and in its immediate neighbourhood, cholera is least prevalent during very dry and very wet seasons. Palaveran, a place nearly exempt from attacks of the disease, and St. Thomas's Mount, without any apparent differences in their soils, show a remarkable difference in their liabilities to be attacked by cholera. In the Neilgherries many facts seem to be in favour of the soundness of Pettenkofer's theory, and the general immunity of the Neilgherry plateau appears to be quite in accordance with the requirements of the subsoil theory. The facts are nevertheless susceptible of explanation by several of the current hypotheses, though that of the pure contagionists entirely fails; and the immunity experienced must be ascribed to some of the physical conditions under which the inhabitants of the district live. At Salem, again, the facts are in accordance with Pettenkofer's views, but are inexplicable on the diffusion-by-water hypothesis alone. He concludes thus:

* 'Seventh Annual Report of the San. Com. of the Gov. of India,' p. 139.

1st. That with the present extremely imperfect data it is quite premature to decide exclusively in favour of any one theory regarding the localisation of cholera.

2nd. That several of the existing theories may really involve partial truths, and that they only become incompatible with one another when insisted on as absolute and entire explanations.

3rd. That although in the report much stress has been laid on the soil theory it is not on account of any assumption of its essential superiority to the others, but because it appears to be little understood in this country (India), and to be regarded with a considerable amount of prejudice in consequence. It has seemed to Dr. Cunningham, therefore, very desirable that the existence of any facts in its favour should be distinctly put forward, and the more so that there seems to be enough of these to forbid the wholesale rejection of the theory, and to warrant the continuance of careful observations which may teach in time the laws of the association of ground moisture with the propagation of cholera.

Dr. Zehnder's report on the cholera epidemic in Zurich in 1867* contains much valuable information on the origin and diffusion of this disease. He regards water-closets contaminated with cholera dejections as the most common cause of contagion, from the germs getting into the air and thus gaining access to the alimentary canal. He did not observe that drinking water played any important part in the diffusion of the disease. Meteorological conditions did not seem to exert any special influence on the spread of the epidemic. The year was very rainy. The nature of the soil, as well its configuration, its elevation, and geological formation, especially in reference to the subsoil water, were likewise without apparent influence on the spread of the epidemic. A comparison of the levels of the ground water with the daily number of cases of cholera, showed that at the time of the outbreak the surface was tolerably dry; at the end of August (the time when the disease was spreading) the rain had caused an increase in the moisture of the soil, while in September the moisture increased as the epidemic gained in strength. From the middle to the end of the month, at which time the epidemic ceased, the moisture gradually diminished till it reached the same condition of dryness as at the time when the outbreak occurred. Hence the disease began with a dry condition of the soil, gained energy as the moisture increased, and again became less active as the dryness returned. Accumulations of filth outside the houses exercised little or no influence on the diffusion of the disease, but the accumulation of moist sewer gases in the interior of houses exercised a most prejudicial effect and greatly contributed to the spread of the contagion. The paper concludes with a description of the methods taken and recommended for checking the diffusion of the disease:—(1) Absolute prevention of access to water-closets in a house once infected after disinfection of the same, and the use of utensils which are to be carefully disinfected and emptied out of the house; (2) the formation of privies for the convenience of those in whose houses or neighbourhood cases of cholera have occurred, but whose

* Virchow and Hirsch's 'Jahresb.,' 1871, ii, p. 214.

mode of life renders it impossible in them to avoid the infected spots.

Erichsen* investigates Pettenkofer's subsoil water theory in reference to diffusion of cholera in St. Petersburg, and comes to the conclusion that in reference to this town it is insufficient to account for the facts observed in regard to the outbreak and spread of the disease.

Pfeiffer,† who is a firm believer in Pettenkofer's subsoil water theory, writes on the influence of temperature of the soil on the origin and spread of cholera. He believes that the temperature of the soil, in addition to the state of humidity and state as regards putrefactive changes, exercises a very important influence on the causation of cholera and its allies. As to arctic regions there are no data on which to build, and in the tropics the uniform temperature of the soil can have little influence. In reference to temperate climates, however, Pfeiffer finds that the acme of an epidemic of cholera coincides with the season of the greatest superficial temperature of the soil; that the cholera diminishes with the rapid decrease of the temperature, and that when the soil has a temperature under 41°—45° Fahr., the disease entirely disappears. The causes of the variation in soil-temperature are of course numerous, such as the temperature of the air, the conductivity of the soil, the humidity, &c. The value of each of these factors the author has studied in the epidemic at Weimar in 1870. The facts are as yet too few to allow of very general conclusions being drawn, but he thinks that more attention should be paid to a subject which is likely to throw much light on the etiology of cholera and other diseases.

Causes of cholera.—Honert‡ believes that cholera depends on poisoning with ammonia which is set free along with so-called marsh gas during the decomposition of nitrogenous substances. Cholera and malarious fever have, therefore, a similar origin. Cholera germs are an absurdity, and the disease is truly autochthonous.

Barth§ also supposes that cholera is due to the action of a specific poison generated in the earth, and that this poison paralyses the nervous system. Communication from one person to another is an unwarrantable supposition. The poison is evolved into the air or becomes dissolved in the water in the ground, and so gains access to the system.

Cholera contagion.—Popoff‖ has made several experiments in regard to the infecting power of cholera excreta, and has compared the effects produced by putrid infection. His experiments were made on dogs. As material for putrid infection he used infusions of putrid meat and rotten yeast, and for cholera he employed the vomited matters, fæces, and urine, in a fresh condition. The materials were introduced partly into the circulation direct, partly into the alimentary canal. The differences between the symptoms and post-mortem appearances in the two cases

* 'St. Petersburg Med. Zeitschr.,' i, p. 325; ii, pp. 437, 537.
† 'Zeitschr. f. Biologie,' vii, p. 263.
‡ Virchow and Hirsch's 'Jahresb.,' 1871, ii, p. 222.
§ Ibid., p. 222.
‖ 'Berlin Klin. Wchnschrft.,' 1872, p. 393.

are accurately and minutely detailed. Of the latter the most characteristic differences are observable in the alimentary canal. In putrid infection the signs are those of simple gastro-enteritis hæmorrhagica (Bergmann) without special affection of the lymphatic glandular apparatus, while in cholera these are affected in a marked degree.

He draws the following conclusions:

(1) Cholera excreta are undoubtedly contagious, as well the vomited matters, as the dejecta and the urine. (2) Cholera excreta are specially contagious in the fresh condition. (3) Decomposed excreta cause a modification of the choleraic symptoms and induce a condition resembling putrid infection. (4) The infection can be caused by direct introduction of the poison into the blood, without having passed the alimentary canal. (5) The action of the cholera poison does not begin at once, but generally after one to three days or longer.

Organisms in cholera.—In a paper on the micrography of cholera,* Nedsvetzki states that from his microscopical investigations of cholera blood and cholera excreta he has been able to confirm the statements of Klob, Thomé, and others, and he likewise claims to have made some fresh discoveries. In the dejecta, vomit, and urine of cholera patients he finds in all, (1) an upper layer consisting of oil-globules of various sizes; (2) a great number of epithelial cells more or less altered such as occur in diphtheritic products; (3) the cells are all filled, as well as the fluid in which they occur, with myriads of actively moving organisms. These organisms are of various forms; granules single and united in a rosette form, rod-shaped organisms, a granular mass composed of minute cellules. These he calls cholera-bacteridia; (4) red and white blood-corpuscles filled with the same organisms; (5) mucus; (6) occasional spores resembling those of aspergillus and penicillium.

In the blood from the skin, the veins, and the heart, he found a greater or less number of fat-globules. In all cases he found the red blood-corpuscles more darkly coloured and less transparent than usual. The darkest blood was found in the parenchyma of the lungs. The white blood-corpuscles were not increased in number. The chief difference appeared to be that in many cases they had passed into a granular mass and had lost their individual contours. The granules after a time began to move like the previously described organisms.

The blood in the capillaries, as studied in fine sections of the skin hardened in chromic acid, exhibited between the corpuscles finely granular masses composed of organisms like the first of those described. He also states that the expired air of cholera patients contain bacteridia. These he regards as the carriers of cholera infection. In the paper ('Moscaner Med. Zeitung') in which his researches are published at length, the author enters into other investigations into the nature of cholera parasites, but which are not here detailed.

Enteric Fever.

Foreign journals† for the year 1871 are rich in contributions re-

* 'Centralblatt. f. d. Med. Wissench.,' 1872, p. 232.

† *Vide* Virchow and Hirsch's 'Jahresb.,' 1872, ii, p. 226.

specting the epidemics of enteric fever which occurred in reserve and field lazarettes during the late Franco-German war. Many of these discuss specially the etiology of the disease, and more than ordinary attention has been directed to the question of its diffusion by the agency of drinking water. Wohlrab * gives a very interesting account of a small epidemic which occurred in the spring of 1870 in the village of Oberwiesenthal, situated 2800 feet above the sea level. The water supply was conveyed through wooden pipes which were found to be in a very filthy state, and so laid that the oozings of open cesspools could easily gain access and become mixed with the water. The disease spread in such a way as to preclude the possibility of diffusion by communication from one person to another. The sudden occurrence of the malady in five houses simultaneously pointed to a common cause. This was traced to contamination of the water supplied to these five dwellings, by the dejecta of the first case which occurred, by oozings from the cesspool into which they were thrown. Subsequent cases occurred traceable to a similar cause. The water was found to contain a large proportion of chlorides. The large quantity of rain which fell during the season was considered to have been the means whereby the mixture of cesspool oozings and the water in the main cisterns was effected.

Reich,† who investigated an epidemic of enteric fever which prevailed in Salzbach from June 1870 to January 1871, though unable to determine how the disease was imported into the town, traced the diffusion of it to a running well which had become contaminated by the overflow of a cesspool situated near it. That this was the source of the spread of the disease appeared from the following facts:—(1) That the disease occurred only in those houses which were supplied from this well, while all the other houses immediately in the vicinity of the infected ones, but which got their water supply from pump wells, remained quite free from contagion. (2) The epidemic ceased and no new cases occurred after the cleansing of the cistern and stoppage of the flow from the well. (3) Analysis of the water proved that it contained a very large amount of organic matter, which must have come from external sources, as the well itself was a granite spring.

Raymond ‡ attributes the diffusion of typhoid in Brussels in the spring and summer of 1871, not so much to conveyance of the contagion by water, but rather to meteorological conditions and to the effluvia from sewers.

Socin § has investigated the relation of typhoid in Basle to the state of the subsoil and the rainfall. His conclusions are:—(1) In all probability unusual dryness favours the development of typhoid in Basle, while increasing moisture checks it. (2) The intensity of the epidemics cannot be explained by the degree or rapidity of the variations in humidity. (3) The epidemics occur usually in the second half of the

* 'Arch. d. Heilk.,' 1871, p. 134.

† 'Aerztl. Mittheil. aus. Baden,' No. 15, 1871.

‡ 'Archiv. Med. Belges,' Juin, 1871, p. 385.

§ 'Typhus, Regenmenge und Grundwasser in Basel, Inaug. Diss.' Basel, 1871, pp. 59, 231. Virchow and Hirsch's 'Jahrsb.,' 1871, ii, p. 231.

year and follow increasing humidity; whence it remains undetermined whether, in contradiction to the first proposition, humidity favours the development of typhoid, or whether it is a late effect of the previous dryness, or whether it is entirely due to temperature. (4) The movements of the disease are the same in all parts of the city, whether high or low, or near or at a distance from the Rhine. (5) The epidemic does not select one part of the city more than another.

Mr. De Renzy* has given a remarkable instance of the extinction of enteric fever in a prison by the simple method of changing the supply of drinking water. For many years some of the ablest of our metropolitan physicians failed to detect the true cause of the unhealthiness of Millbank prison, and assigned various causes for it which later experience has proved to be unconnected with it. Enteric fever was rife from time to time in the gaol. In the year 1854, however, the water supply was changed with the best possible results. Previously, the water used for drinking purposes in the prison was pumped direct from the Thames, but was of course filtered before use. The water used for domestic purposes is now supplied by the artesian well in Trafalgar Square. The change was carried into effect in the midst of the cholera epidemic which was then so severely visiting London, and the prison was suffering from cholera at the time. Six days after the change the disease suddenly ceased, and a marked improvement took place in the health of the prisoners. From the date of the introduction of the new water supply up to April 1872, a period of nearly 19 years, there have been only three deaths from enteric fever, viz. one in 1855, one in 1860, and one 1865.

Mr. De Renzy thinks that the sanitary history of Millbank—which he gives in detail—appears to warrant the following conclusions:

1. That the extinction of enteric fever, and other diseases of the same class, is quite within the range of practicability. 2. That the extinction of one class of zymotic diseases is not necessarily followed by zymotic diseases of a different class. For example:—It is supposed that the increased prevalence of scarlatina and measles of late years is due to the partial displacement of smallpox by vaccination. The case of Millbank shows that it is practicable to protect a community against every kind of zymotic disease. Ignorance of sanitary science is the great obstacle to the extension of this protection to the free population. 3. That since some of the ablest physicians in London failed for many years to detect the true cause of the unhealthiness of Millbank Prison, and assigned causes for it which later experience has found to be unconnected with it, the probability is that a similar error is frequently made elsewhere, and that the prevalence of some zymotic disease is ascribed to locality, malaria, heat, cold, variations of temperature, moral depression, and other intangible influences which would be entirely removed by the general disuse of impure water. 4. That as it required long years of observation to establish the noxious influence of Thames water in Millbank, even when well filtered, under conditions very favorable for detection, we should be

* 'Lancet,' 1872, i, pp. 787, 820.

cautious in accepting the opinion, based on the results of chemical analysis, that the use of that water by the population of London is free from danger.

The 'Second Annual Report of the State Board of Health of Massachusetts'* contains a number of queries and the replies to them, from medical men in 163 towns in the State, in reference to the causes of enteric fever.

The following is a statement of the questions and answers:

(1) Have you observed a difference in the prevalence of this disease between houses supplied with water from wells about the premises and houses supplied with water conveyed from springs or from ponds of unquestionable purity?—Replies: "Yes," 23; "no difference has been remarked," 71; whole supply of towns from wells, 18; indefinite, 51.

(2) Can you inform us whether, at times, when typhoid prevailed, the water of the wells was rising or falling, and whether it was higher or lower than the average for the year? (To this question is appended a note recommending observation of the height of the subsoil water in future, if attention had not previously been directed to it.)—Replies: Rising after being very low, 11; falling, 16; very low, 28; "have not observed," 100.

(3) Have you observed any connection between typhoid fever and foul soil, whether from privies, pigsties, manure heaps, or similar collections of decomposing matter lying on the ground?—Replies: Yes, 79; no, 45; doubtful, 39.

(4) Have you observed any connection between typhoid fever and putrid air, whether from rotting vegetables in cellars, bad drains, unventilated living or sleeping rooms, or from any other cause?—Replies: Yes, 90; no, 36; doubtful, 37.

Ten towns report that typhoid is a disease almost entirely unknown among them, and they can assign no reason for this. In a table is given the mortality from typhoid fever in the urban population of Massachusetts during the last ten years, from which it appears that in 147 cities and towns of more than 2000 inhabitants the average annual rate of mortality from this disease was 0·755 per 1000 persons living; whilst in 184 towns of less than 2000 inhabitants the average annual rate of mortality was so much as 1·189 per ·1000 persons living.

Typhoid is more prevalent in the smaller rural towns than in the large manufacturing towns, but the mortality from all causes is higher in the latter. Decomposing organic matter is considered in the report as the proximate cause of enteric fever.

Typhus.—Grun† is of opinion, from his investigations into the epidemic of typhus in East Russia, in 1867 and 1868, that the disease is of autochthonous origin, and springs up where filth, poverty, and bad air prevail, and where vegetable and animal organisms find a suitable nidus, and develope a poison which disseminates itself further by way of contagion.

Virchow‡ has convinced himself that there are no sufficient grounds

* 'Dublin Quart. Journ. of Med. Sci.,' li, p. 480.
† 'Vierteljahrschr. f. Gerichtl. Med.,' xiii, p. 203.
‡ 'Virchow's Archiv,' 53, p. 134.

for believing in the spontaneous generation of this disease, and that it can, as a rule, be traced to contagion.

Pastau* describes an epidemic of typhus which prevailed in Breslau from 1868 to 1869. The disease followed close on an epidemic of relapsing fever, and spread particularly in those districts in which relapsing fever had raged. In all, there occurred 738 cases, 419 of which were among men, and 319 in women; 78 persons survived both diseases. Nearly the half of the cases fell between the ages of sixteen to thirty-five years. The mortality, on the average, was 14·92 per cent., and increased with age. During the prevalence of the typhus epidemic, cases of enteric fever were less numerous. Etiologically, according to Pastau, typhus seems to have something in common with relapsing fever. Good results were obtained from the cold water treatment. With this treatment the mortality was 9·23 per cent. during the first week, and 14·66 per cent. in the second week, against a percentage of 16·47 when the expectant treatment was followed.

Relapsing fever.—Tennent† communicates a very interesting series of observations on the epidemic of relapsing fever in Glasgow in 1870. The origin of the epidemic was traced to infection from Edinburgh. From this focus the contagion spread, and reached its height in the middle of December. About 1200 in all were affected, a very small number when compared with the epidemic of 1843, on which occasion as many as 32,000 cases occurred. The disease prevailed almost exclusively in the poorer districts of the town. The disease was very infectious, so that out of 352 cases, infection was clearly traced in 295. Nearly all the occupants of the same house were affected about the same time. This was evidently dependent on faulty hygienic conditions, since of 80 nurses and attendants in the hospital only 16 cases of the disease occurred. It was also observed that in proportion to the increase in the number of cases of relapsing fever those of typhus diminished, a fact which was likewise observed in London and Edinburgh.

The paper gives a full account of the symptoms and sequelæ of the disease. The mortality was small, only 6 fatal cases occurring out of a total of 352 cases.

Tennent did not observe the ophthalmia described by Mackenzie among the sequelæ.

Charteris,‡ however, had opportunity during this epidemic of studying this "post-febrile ophthalmia," of which he gives a detailed account.

The reappearance of relapsing fever in the southern district of the metropolis at the close of 1872 was followed by its appearance in Manchester in the Pottery District, and led to the issue, by the medical officer of the Local Government Board, of a memorandum on the chief practical points to be borne in view by the sanitary and other authorities responsible for taking precautions against the disease and its consequences.

* 'Centralblatt f. die Med. Wissensch.,' 1871, p. 362.
† 'Glasgow Med. Journ.,' May, 1871, p. 354.
‡ Ibid., p. 347.

Scarlet fever.—Dr. Alfred Carpenter* propounds some new ideas regarding the causation of scarlet fever. He brings forward a number of facts relating to the diffusion of this disease in Croydon, which seems to warrant the conclusion that scarlet fever may originate, *de novo*, from the decomposition of blood outside the organism under certain unknown conditions. The fatal cases of scarlet fever occur in Croydon chiefly in three places, which have this in common, that they are in the neighbourhood of slaughter-houses, from which the drainage is imperfect. He holds that, unlike typhoid, scarlet fever is independent of the sanitary state of the district, inasmuch as it prevails to a great extent where good drainage, &c., has driven typhoid away. Cases are given where scarlet fever broke out, and proved very fatal, in new houses which had been built on land previously manured with blood from slaughter-houses.

Copeman† believes that the scarlet fever miasma is diffused chiefly by the fæces, and hence he recommends that these should be thoroughly disinfected.

Dr. Geo. Johnson‡ considers that the infective period of scarlet fever lasts over a month from the first day of the disease. The carriers of the poison are the secretions of the throat, the nose, and the epidermic scales. Also the fæces and the urine may carry the contagion. He recommends as prophylactic treatment the isolation of the patient and burning a fire night and day in the apartment. All carpets, &c., must be removed, and the attendants must wear easily washed clothes, and avoid intercourse with other persons as much as possible. Excreta, urine, &c., must be carefully disinfected.

In order to avoid infection from the skin, the patient should be bathed, once or twice a day, as long as desquamation goes on, in a warm bath, and afterwards rubbed with camphor oil, or better, with carbolic acid soap, during the bath.

When the patient is well, the room and everything in it must be thoroughly cleaned out and disinfected. The doors and windows of the room should be left open for a long time, and a fire kept continually burning in it.

Children living in a house where scarlet fever prevails must be kept from school, in order to avoid any risk of their propagating the contagion.

Smallpox.—The year 1871 was chiefly remarkable at home through the prevalence, first in London, and afterwards generally in England, of a far severer epidemic of smallpox than any which had been witnessed of late years, or probably since the general use of vaccination. It appears to have killed in England, within the year, nearly 23,000 persons, including 7876 of the population of London.§ The severity of the epidemic became evident in two ways—first, by the extraordinary multitude of persons whom the disease attacked, and secondly, by the extraordinary intensity of the disease in the individual cases. To illustrate the latter point, it may suffice to mention that at the London Smallpox Hospital, where 950 cases were treated during the year, the deaths, in

* 'Lancet,' 1871, pp. 110, 148.
† 'St. George's Hosp. Rep.,' vol. v, No. 3, p. 55.
‡ 'British Med. Journ.,' 1870, ii, p. 315.
§ 'First Report of the Local Government Board,' 1871-72, p. lii, (blue book).

proportion to the cases, were nearly twice as many as the average experience of the hospital for thirty-two years would have prognosticated.

This great epidemic of smallpox was not confined to our own country, and though authentic information cannot be quoted as to all the diffusion of the disease in Continental Europe, facts enough are known to justify the belief that, at least in the north-western parts of the Continent, the power of the epidemic was as great as here.

The lessons of this epidemic, in reference to the value of vaccination, afford some very suggestive facts for comparison. In the chief towns of Holland, where vaccination is non-compulsory, and where, as a rule, the children are long left unvaccinated; in Hamburg, with non-compulsory vaccination; in Paris, where not only vaccination is non-compulsory, but where also, at least some years ago, there were strong grounds for suspecting the quality of much of the current vaccination; —in all these places the epidemic seems to have raged with very much more severity than even in London; and Hamburg, which, though having but a tenth part of our London population, suffered nearly two thirds as many deaths as London, has now, under influence of this terrible suffering, been led for the first time to pass a law of compulsory vaccination.

The proceedings taken by the Local Government Board for England, with reference to the epidemic of smallpox, consisted in endeavours to move local authorities to resist the disease in their respective districts by duly administering, first and above all, as specially applicable to the case, the provisions of the vaccination law, and secondly, those provisions of nuisance law which apply to all dangerous infectious disease, and are meant to secure the isolation of the sick and the disinfection of infected houses and things. The extensive diffusion of the disease in England brought into prominence the evil results of the general want throughout the country of hospital accommodation for cases of dangerous infectious disease.

The epidemic brought also into strong relief two popular errors with regard to re-vaccination. First, the error of not having it performed on each person (irrespectively of any immediate alarm of smallpox) on his attaining the age of puberty, and secondly, the error of seeking under panic to have it performed indiscriminately again and again. Under the influence of these two errors, Mr. Simon states,* the first allowing an indefinite accumulation of postponed cases, and the second giving swarms of needless, or relatively needless, re-applicants, the demand for re-vaccination, under alarm of this great epidemic, was such as medical practitioners could not by any possibility at once meet without sacrificing the cardinal conditions of safe vaccination.

It is stated in a report† that the necessity of re-vaccination when the protective power of the primary vaccination has to a great extent passed away, cannot be too strongly urged. No greater argument to prove the efficacy of this precaution can be adduced than the fact that, out of

* Loc. cit.

† 'Report of a Committee of the Managers of the Metropolitan Asylum District, &c., 1872.' Pamphlet.

upwards of 14,800 cases received into the hospitals, only four well-authenticated cases were treated in which re-vaccination had been properly performed, and these were light attacks. Further conclusive evidence is afforded by the facts, that all the nurses and servants of the hospitals, to the number at one time of upwards of 300, who were hourly brought into the most intimate contact with the disease, who constantly breathed its atmosphere, and than whom none can be more exposed to its contagion, have, with but few exceptions, enjoyed complete immunity from its attacks. These exceptions were cases of nurses or servants whose re-vaccination, in the pressure of the epidemic, was overlooked, and who speedily took the disease; and one case was that of a nurse who, having had smallpox previously, was not re-vaccinated, and took the disease a second time.

The medical officer of the Homerton Fever Hospital* (used during the smallpox epidemic for smallpox patients) gives tables, embodying the experience of that institution, to disprove a very common error, viz. that more vaccinated than unvaccinated persons are attacked by smallpox, and states that the real truth is that vaccinated persons, and by vaccinated persons he means only properly vaccinated persons, form but a very small proportion of those attacked by smallpox. Looking at the cases, divided into those occurring before and after puberty, he finds the case stands thus with regard to patients treated in the above-mentioned hospital. Of 411 of smallpox vaccinated and unvaccinated, only 17 had been vaccinated according to the standard of the vaccine institution, and 4 according to Mr. Marson's standard, *i. e.* that of 411 smallpox patients, but 21 had been vaccinated properly. The proportion of well-vaccinated persons attacked by the disease after puberty was higher than under that age, but it was still true that well-vaccinated persons formed but a small proportion of the smallpox cases. Of 549 cases occurring after fifteen, 32 only had been vaccinated according to the directions of the vaccine institution, and but 13 according to Mr. Marson. Taking all the cases together, and assuming the two standards referred to as equally good, it was found that of 1000 cases of smallpox, 65 only had been efficiently vaccinated, the other 935 had been inefficiently vaccinated.

Another table is given showing the importance of quality in vaccination, and illustrating the influence of different kinds of vaccination in determining the severity short of death. Not a single severe case occurred in a vaccinated child, and only 7 well vaccinated children had the disease, and these in a very mild form. Of 152 cases of severe smallpox occurring after twelve years of age, 51 per cent. occurred amongst the unvaccinated, 23 per cent. amongst the badly vaccinated, 4 per cent. amongst the fairly well vaccinated, and amongst the well vaccinated there was but one case.

A select committee of the House of Commons sat in the session of 1870, and arrived at these among other conclusions:†—That the cow-pox affords, if not an absolute, yet a very great protection against an attack

* 'Report of the Medical Officer of the Homerton Fever Hospital for 1871-2.' Pamphlet.

† Report. Vaccination Act (1867). Blue book.

of smallpox, and an almost absolute protection against death from that disease. That if the operation be performed with due regard to the health of the patient vaccinated, and with proper precaution in obtaining and using the vaccine lymph, there need be no apprehension that vaccination will injure health or communicate any disease. That smallpox unchecked by vaccination is one of the most terrible and destructive of diseases; as regards the danger of infection, the proportion of deaths among those attacked, and the permanent injury to the survivors, and therefore that it is the duty of the State to endeavour to secure the careful vaccination of the whole population. As a consequence of the recommendations of the select committee, the Vaccination Act, 1871, was passed, the provisions of which must be known to the readers of this 'Retrospect.' The bulky report of the select committee contains a mass of extremely valuable matter relating to vaccination and re-vaccination, including all that can be said against the operation.

Scurvy.—Much interesting matter has been published relative to a scorbutic epidemic which prevailed in Paris during the winter of the siege of 1870-71.* As regards the etiology of the disease, Dr. O. Berger is of opinion that scurvy was brought about by the following causes:—Depressing mental influences; undue bodily exertion, as well as want of exercise; overcrowding; cold; alteration in diet, more especially the want of fresh vegetables; want of food, and this was the chief cause of the epidemic. An insufficient quantity of food acted, however, as a predisposing cause only, and was incompetent to induce the disease in the absence of special conditions, notably the withdrawal of fresh vegetables. Even with this in other respects best of diets, lack of fresh vegetables induced scurvy. As regards the quantity of food it is worthy of note that the theory which asserts that the use of salt meat produces scurvy, receives no support from the facts observed during the siege; a diet of fresh meat induced scurvy where fresh vegetables were withheld, even when every other hygienic condition was perfect. Acid fruits were found to replace fresh vegetables. Wounds received whilst fighting were not proved to predispose towards the disease. Chalvet found the cause of scurvy to be inanition, in conjunction with cold. It is also asserted that the great benefit derived from the use of green vegetables and fruits arises from this, that the potash salts contained in them readily split up in the organism into acid and base, whilst the phosphate, nitrate, and chloride, being much more stable, cannot replace the less stable potash salts.

Delpech† found that an abundant diet of fresh meat did not ward off the disease where fresh vegetables were withheld, and asserts that the deprivation of a vegetable diet is the sole determining cause of scurvy.

Dwellers in marshes.—Prof. Prestel,‡ of Emden, recommends rain-water for use among the dwellers in marshes, where, as is well known, it is often next to impossible to procure good drinking-water from wells

* 'Ann. d'Hyg.,' xxxv, p. 297, and xxxvi, p. 279. 'Gaz. Hebd.,' viii (xviii), 1871, 6, 9, 14, 16, 17, 18. 'Schmidt's Jahrb.,' cliii, p. 82.

† Loc. cit.

‡ 'Vrtljhrsschrft. f. Gericht. Med.,' N.F., xvi, p. 336.

sunk in the ground. He raises a novel criterion of the fitness of rain-water for drinking purposes. It is a familiar fact that rain-water undergoes a sort of fermentation, by which it is freed from various organic matters, which have been washed out of the atmosphere. Subsequently various animal organisms are developed in the water. Dr. Prestel says that, as long as entomostracæ (cypris, cyclops, daphnia, &c., *i. e.* water-fleas, &c.) are active in the water, it is fitted for drinking purposes. The animals may readily be separated by a very coarse method of filtration. Whenever such water becomes an unhealthy and non-potable liquid the above organisms perish.

The author also asserts that in marshes the mortality is in inverse ratio in different years and seasons to the amount of rainfall; a diminished rainfall in one month is followed by an increased mortality during the succeeding month, and, *vice versâ*, an unusual rainfall during one month is followed by a diminished mortality during the next month. The saying, "More rain the less sickness," may be accepted as an axiomatic truth.

Air and rain.—Dr. Angus Smith* has published an elaborate but highly diffuse work on the above subject, and intended as the beginning of a chemical climatology. Its great merit consists in the large number of facts embodied in it; and Dr. Smith, from his official position as (General) Inspector of Alkali Works for the British Government, has had better means than almost any man living of getting at facts bearing upon the subject of which he treats. He shows that small differences from the mean of 20·96—the percentage of oxygen in pure air—may make vast differences in its healthiness or unhealthiness; and also that a moderate increase in the percentage of carbonic acid, formed at the expense of the oxygen, may have much to do with the unhealthiness of air. It must not be forgotten that when the carbonic acid is derived from the act of respiration, organic impurities are also brought into play, and these the author attempts to determine quantitatively by Wanklyn, Chapman, and Smith's process of oxidation by an alkaline solution of permanganates, and estimation of the resultant ammonia—a process which has been found to be exceedingly valuable for the determination of the amount of nitrogenous organic impurity in drinking waters.

Dr. Angus Smith's work is merely tentative and of a preliminary character, so that it is rendered unsuited for brief abstraction. No doubt he will extend his researches, and endeavour to draw some useful general conclusions from them.

Alcoholism.—Several exhaustive essays upon this topic have appeared. We can merely indicate the titles of some of these:—M. Ach. Foville,† jun., on 'Practical Means for Combating Drunkenness;' Dr. Jules Bergeron‡ on 'The Repression of Alcoholism.'

Petroleum.—M. A. Chevallier§ has investigated the dangers attending the manipulation, stowage, and use of petroleum. The physiological

* 'Air and Rain.' London, 1872.
† 'Ann. d.'Hyg.,' [2] xxxvii, pp. 1, 299.
‡ Ibid., xxxviii, p. 1.
§ Ibid., xxxviii, p. 277.

effects produced by petroleum are a peculiar action on the brain and heart. The lighter portions of the oil, known as petroleum ether or benzoline, may be used as an anæsthetic. It is known that workmen who are engaged in petroleum warehouses suffer severely from inhalation of the vapours; and certain precautions are necessary in order to work safely with petroleum.

Entozoa in relation to public health and the sewage question.—Dr. Spencer Cobbold* is of opinion that the utilization of sewage for the purposes of irrigation greatly contributes to the diffusion and growth of parasites in man and the domestic animals. He mentions facts which seem to render this not merely a hypothesis; the common occurrence of entozoa, the difficulty of diagnosing the diseases caused by them and the enormous number of ova which they produce. Parasites once introduced into a locality can by means of sewage irrigation become endemic. In regard to the enormous reproductive powers of entozoa, he mentions the case of a girl under treatment for bilharzia hæmatobium, whose urine daily contained so many as 10,000 ova of this parasite.

Disinfection.—Prof. Hoppe-Seyler† has made a valuable contribution to our knowledge of putrefactive and fermentative processes, and he has also investigated the influence which several reputed disinfectants exert upon these processes. Our review will embrace this latter portion of the subject only.

After reference to Pettenkofer's well-known views as to cholera-germs, the author asserts that, although deodorants, as, *e.g.* sulphate of iron, destroy the ill-smelling products of fermentation and putrefaction, it must not be supposed that the infective materials of such diseases as cholera and typhus are thereby necessarily destroyed, and that in carrying out disinfection we must not rest contented with merely destroying bad smells. He is of opinion that metallic salts act as disinfectants chiefly by precipitating ferments, and along with these the lower organisms also. He has proved that 1-20th of green vitriol suffices to prevent all development of infusorial life in a solution; but it is questionable whether the ferment and the organisms are respectively so changed and destroyed as to be incapable of showing their activity renewed under altered conditions. As regards carbolic acid, Hoppe-Seyler finds that the destruction of the lower organisms is admirably achieved by the use of a very small quantity of this agent, but that the prevention of fermentation demands the employment of a much larger amount of it. One per cent. of carbolic acid will effectually put an end to organic life, but two per cent. is required to prevent putrefactive changes.

Sulphurous acid gas appears to the author to be the most effective agent for destroying germs in the air. Rather less than 1½—3 ounces of sulphur burnt in each 100 cubic feet of the space to be disinfected entirely prevents the growth of fungi. These quantities of sulphur give one and two volumes per cent. respectively of sulphurous acid gas.

* 'Med. Times and Gazette,' 1871, i, pp. 93, 215, 236, 363.

† 'Medizin.-Chem. Untersuch.,' 1871, p. 561.

Some further useful and new information on this subject is also contained in a paper by Dr. Zapolsky.*

The Chemical Society of Berlin† has issued the following instructions for disinfection. They are so valuable that we give them almost in full:

Excrementitious matters and privies.—For commodes, solutions of permanganate of potash or of carbolic acid are to be used, also for pus-basins and chamber utensils, rinsing with carbolic acid solution, leaving a little of the solution in the vessels after the operation. For spittoons, carbolic acid powder. For night stools, carbolic acid powder if they are to remain unemptied, and solutions of permanganate of potash if they are emptied immediately. For closets with separate receptacles, carbolic acid powder to the solid, solution of carbolic acid to the liquid, excrement. For water-closets use carbolic acid water. For privies communicating with cess-pits use carbolic acid powder, solutions of chloride of manganese, green vitriol, or other metallic salt; applying the disinfectant to the surrounding soil also. For privies communicating with dung pits, sprinkle with carbolic acid powder or with a solution of carbolic acid in water. For sanitary pipes use carbolic acid water. For latrines in camps and barracks use lime, gypsum, or, at all events, earth, and change the site of the latrines frequently. Dung-heaps are to be treated with carbolic acid powder. Urinals are to be treated with carbolic acid water and solution of chloride of lime (we have found chloride of lime of little use in deodorising urinals; the chloride soon expends itself in liberating nitrogen from urea.—Ed.). Spent charpie, lint, bandages, &c., should be collected in vessels of tinned iron containing permanganate of potash or carbolic acid, and then burnt. If the above are thrown into dust-bins, chloride of lime is to be employed. Straw, hay, and the like, from transports for the wounded, and soaked mattresses not again to be used should be treated with chloride of lime, and burnt as quickly as possible. Animal refuse from slaughter-houses and lairs are to be buried deeply and covered with quicklime or with chloride of lime.

Enclosures.—These include sick-rooms, railway carriages, and waggons (and things used for transports of every kind), cowstalls (especial attention must be paid to the mangers), workrooms in factories, schools, prison-cells, sentry- and watch- boxes, lavatories, barracks, living-rooms, urinals, operation-rooms, dead-houses, warehouses filled with animal matter, slaughter-houses, and ship-decks.

The floors of these are to be scoured with carbolic acid water, and the walls and ceilings lime-washed with carbolic acid and lime, and the air is to be purified by the evaporation of wood-vinegar, or carbolic acid (from the powder).

If the rooms are unused—and only then is an actual disinfection of the air feasible—the floors are to be washed with a solution of chloride of lime or of hypochlorite (liq. sodæ chloratæ, &c.) or a solution of chloride of manganese. Place about the room or other vessels containing chloride of lime with either hydrochloric or acetic

* 'Medizin.-Chem Untersuch.,' p. 842.

† 'Deut. Ztschr. f. Staatsarznkd,' n. f. xxix, p. 164

acid, or strong nitric acid, or nitric acid and pieces of tin-foil. Sulphur may be burnt (roll brimstone is best) in earthenware vessels. After fumigation use free ventilation and sprinkle carbolic acid water about.

Open spaces. — Courts, market-places, open abattoirs, cemeteries, battle-fields, and deserted places of rendezvous here included.

Above all things, remove the causes of danger (putrefying refuse, corpses, &c. &c.), burying such matters, or covering them with chloride of lime, lime, or earth. Further, larger surfaces are, when possible, to be watered with a solution of chloride of manganese. The sowing of plants of rapid growth is very advisable.

Water.—Drinking water is best rendered harmless by previous boiling. Failing this, permanganate of potash may be added till the water is just tinged by the salt.

Turbid water, or water that becomes turbid on standing, may be clarified by the addition of a little alum or soda.

Carbon filters remain active only when they are frequently calcined with exclusion of air.

Flowing or stagnant water.—Sinks, gutters, conduits of all kinds, pools, &c., are to be sluiced with as much water as possible, and to be frequently treated with the following agents: carbolic acid, quick lime, chloride of magnesium, and tar (Suvern's mixture, see below), alum salts, chloride of manganese, and other metallic salts.

Body- and bed-linen, articles of clothing, &c.—Linen must be sprinkled immediately after use with carbolic acid water, and then immersed for some time in boiling water.

Mattresses, uniforms, and articles of clothing, are best heated in an oven to 212° to 258° Fahr., and afterwards beaten. When this cannot be done, the actually infected articles are to be burnt, and the rest soaked in carbolic acid water, and then dried in a warm room.

Men and living animals that have come into personal contact with infected matters.—Wash the hands in a solution of permanganate of potash. The animals are to be sprinkled all over with carbolic acid water and especially on the soft parts.

Corpses which are to be removed to a distance are to be sprinkled with carbolic acid water, and to be wrapped in cloths soaked in solution of chloride of lime (1 in 20.)

When possible the abdomen is to be opened—a small opening will suffice—and solid chloride of lime inserted.

Wounds.—The treatment of these must always be left to the surgeon. It may, however, be remarked that solutions of *pure* permanganate of potash and pure carbolic acid should alone be used.

Directions for the preparation of the disinfecting materials.—Solutions of *permanganate of potash* should contain 1 part of the pure salt in 100 parts of water, or, if the crude salt be used, 5—10 parts in the same quantity of water. It acts, in solution, as a disinfectant, but acts only on the surface of solid masses.

Carbolic acid water is obtained by dissolving 1 part of pure crystallized carbolic acid (liquefied by immersing the vessel in warm water) in 100 parts of water. Crude carbolic acid, the strength of which

is very variable, is used in the proportion of 1 part acid to 50 of water.

Carbolic acid powder is prepared by mixing 100 parts of peat, gypsum, earth, sand, sawdust, or charcoal, with 1 part of carbolic acid previously mixed with water. The crude acid is recommended, used in double the above proportion.

If *carbolic acid salts* are employed twice as much is required as of the acid itself.

Carbolic acid lime-white is made by mixing 1 part of carbolic acid with 100 parts of milk of lime.

Solution of chloride of lime should be made by mixing 1 part of the chloride with 100 parts of water.

Bromine may be used, but with great care, on account of its highly poisonous action. Its saturated solution in water is the best substance to be used, and may be employed where chloride of lime and the like are directed to be employed. The preparation of bromine water should not be entrusted to unpractised hands.

Solutions of *green vitriol* and other metallic salts are prepared by agitating an excess of the salt with water.

Suvern's mixture is made from 100 parts slaked lime, 15 parts coal-tar, and 15 parts chloride of magnesium, mixed with water.

Legislation.

The Sessions of the British Parliament of 1871 and 1872 were the occasions of the passing of the following Statutes bearing upon the public health:—the Local Government Board Act, 1871; the Factory and Workshop Act, 1871; the Metropolis Water Act, 1871; the Infant Life Protection Act, 1872; the Factories Steam Whistles Act, 1872; and the Adulteration of Food, Drink, and Drugs Act, 1872.

The Local Government Board Act, 1871, provided for the constitution of a central board, now known as the Local Government Board, to which were transferred all the powers and duties vested in the old Poor Law Board, those vested in the Medical Department of the Privy Council Office, those vested in the Secretaries of State under Local Government Acts, and certain sanitary functions of the Board of Trade. This Act was a necessary preliminary to the bringing in of a new Public Health Bill.

The Factory and Workshop Act, 1871, transferred from the local sanitary authorities to Her Majesty's Inspectors of Factories the supervision of the hours of labour limited and prescribed by previous statutes for women and children, and introduced certain modifications of the legal hours of work in certain trades and occupations.

The Metropolis Water Act, 1872, provides, under certain regulations, for a constant water supply to the houses in London and its suburbs. The regulations have been framed, but the Act has hitherto been a dead letter. The interests of small property holders are too powerful to permit local authorities to put the provisions of the statute in force; hence London remains with a, for the most part, intermittent water-supply.

The Infant Life Protection Act, 1872, contemplates the periodical examination and licensing of all houses where baby-farming is carried on as a practice, and is intended to insure for infants sent out to nurse, proper food and attention; and, in the event of death an inquest is directed to be held.

The Factories Steam Whistles Act requires the sanction of the local sanitary authority for the use of steam whistles and trumpets, in order to prevent annoyance in quiet neighbourhoods.

The Act of 1872 to amend the law for the prevention of adulteration of food and drink and of drugs is a most important one. By the old statute of 1860 it was made penal to adulterate articles of food and drink with substances injurious to health. By the Pharmacy Act of 1868, the provisions of the above statute were extended to drugs; but the adulteration of drugs was deemed of such importance to the community that all admixtures of drugs were declared to be adulterations. These Acts were entirely inoperative, and not being obligatory, were never put in force. The recent statute amends the definition of adulteration, and enacts a penalty for the mixer, and the person who orders admixture, as well as for the vendor of adulterated articles of food, drink and drugs. It is thought that the law now stands thus, 1. All admixtures of drugs are adulterations injurious to health. 2. Food and drinks are adulterated when they are mixed with substances injurious to health, and also when substances are added *fraudulently* to increase weight and bulk. 3. Local authorities are empowered to appoint analysts, who must have competent medical, chemical and microscopical knowledge, and it is supposed that the Local Government Board can compel recalcitrant local authorities to apppoint analysts.

The Public Health Act, 1872, is a most important measure, providing for the constitution of urban and rural sanitary districts, authorities and officers; bringing the whole of England under sanitary *régime*, and giving the central Local Government Board a direct voice in, and control over, the proceedings of the local sanitary authorities. It is expected that this statute will speedily be supplemented by a consolidation of sanitary law—a reform much needed.

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